

# DHC-MD313

## SERVICE MANUAL

Canadian Model  
AEP Model  
UK Model  
E Model

- DHC-MD313 is composed of following models.  
As for the service manual, it is issued for each component model, then, please refer to it.

### COMPONENT MODEL NAME FOR THIS SYSTEM

	DHC-MD313
COMPACT DISC DECK RECEIVER SYSTEM	HCD-MD313
SPEAKER SYSTEM	SS-MD313

### Abbreviation

AED: North Europe CND: Canadian  
G : German HK: Hong Kong  
MY: Malaysia SP: Singapore

### SPECIFICATIONS

#### General

##### Power requirements

European model: 220-230 V AC, 50/60 Hz  
Canadian model: 120V AC, 60 Hz  
Other models: 110-120 V or 220-240 V  
AC adjustable, 50/60Hz

##### Power consumption

Canadian model: 70W  
Other models: 80W  
Supplied accessories:  
AM loop antenna (1)  
FM wire antenna (1)  
Remote Commander RM-MD313 (1)

Design and specifications are subject to change without notice.

### PARTS LIST

<u>Part No.</u>	<u>Description</u>
	ACCESSORIES & PACKING MATERIALS *****
1-475-336-11	REMOTE COMMANDER (RM-MD313)
1-501-721-11	ANTENNA, LOOP
1-501-594-31	ANTENNA (FM) (AEP,UK,G)
1-501-659-41	ANTENNA (FM) (CND,MY,SP,HK)
3-860-707-13	MANUAL, INSTRUCTION (ENGLISH)
3-860-707-23	MANUAL, INSTRUCTION (FRENCH, SPANISH) (CND,AEP,SP)
3-860-707-31	MANUAL, INSTRUCTION (GERMAN,DUTCH) (AEP, G)
3-860-707-41	MANUAL, INSTRUCTION (PORTUGUESE, ITALIAN) (AEP)
3-860-707-51	MANUAL, INSTRUCTION (SWEDISH, DANISH, FINNISH)(AED)
3-860-707-61	MANUAL, INSTRUCTION (CHINESE) (MY,SP,HK)
4-981-643-21	COVER, BATTERY (for RM-MD313)

### COMPACT Hi-Fi STEREO SYSTEM

**SONY**®



MICROFILM

9-920-955-12

Sony Corporation  
Home A&V Products Company

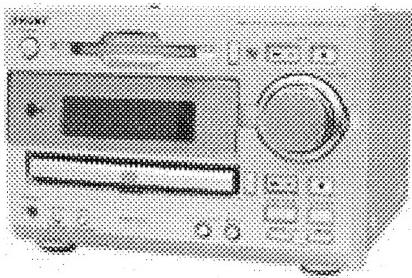
97L0005047-1D  
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Published by General Engineering Dept.  
(Shibaura)

# HCD-MD313

## SERVICE MANUAL

**Self Diagnostics**  
Supports model

AEP Model  
UK Model  
E Model



HCD-MD313 is the amplifier, CD, MD and tuner section in DHC-MD313.

US and foreign patents licensed from Dolby Laboratories Licensing Corporation.

CD Section	Model Name Using Similar Mechanism	HCD-T1
	CD Mechanism Type	CDM13C-5BD19
	Base Unit Name	BU-5BD19
	Optical Pick-up Name	KSS-213B/K-N
MD Section	Model Name Using Similar Mechanism	MDS-MX1
	MD Mechanism Type	MDM-3D
	Optical Pick-up Name	KMS-260AJ1N

### SPECIFICATIONS

#### Amplifier section

European model:

DIN power output 25 + 25 watts (6 ohms at 1 kHz, DIN)

Continuous RMS power output

30+30 watts

(6 ohms at 1 kHz, 10% THD)

Music power output 50+50 watts

Other models:

Peak music power output 400 watts

Continuous RMS power output

25 + 25 watts (6 ohms at 1 kHz, 10% THD)

Inputs

TAPE IN (phono jacks):

voltage 250 mV/125 mV, impedance 47 kilohms

Outputs

TAPE OUT (phono jacks):

voltage 250 mV impedance 1 kilohms

PHONES (stereo phone jack):

accepts headphones of 8 ohms or more.

SPEAKER:

accepts impedance of 6 to 16 ohms.

#### CD player section

System

Compact disc and digital audio system

Laser

Semiconductor laser ( $\lambda = 780 \text{ nm}$ )

Emission duration: continuous

Laser output

Max. 44.6  $\mu\text{W}^*$

\*This output is the value measured at a distance of 200 mm from the objective lens surface on the Optical Pick-up Block with a 7 mm aperture.

Frequency response

2 Hz – 20 kHz

#### MD deck section

System

MiniDisc digital audio system

Laser Semiconductor laser ( $\lambda = 780 \text{ nm}$ )

Emission duration: continuous

Laser output Max. 44.6  $\mu\text{W}^*$

\*This output is the value measured at a distance of 200 mm from the objective lens surface on the Optical Pick-up Block with a 7 mm aperture.

Recording time 74 minutes max. (using MDW-74)

Sampling frequency 44.1 kHz

Frequency response 5 Hz to 20 kHz

#### Tuner section

FM stereo, FM/AM superheterodyne tuner

#### FM tuner section

Tuning range 87.5 – 108.0 MHz (50 kHz step)

Aerial FM lead aerial

Aerial terminals 75 ohms unbalanced

Intermediate frequency 10.7 MHz

– Continued on next page –

## MINI Hi-Fi COMPONENT SYSTEM

**SONY**®



MICROFILM

## AM tuner section

Tuning range	
European model:	
MW:	522 – 1,611 kHz (with the interval set at 9 kHz)
LW:	144 – 288 kHz (with the interval set at 3 kHz)
Other models:	
MW:	531 – 1,602 kHz (with the interval set at 9 kHz)
SW:	5.95 – 17.90 MHz (with the interval set at 10 kHz)

## General

Power requirements	
European model:	220 – 230 V AC, 50/60 Hz
Other models:	110 – 120 V or 220 – 240 V AC, 50/60 Hz
Power consumption:	80 watts

## Dimensions

Amplifier/Tuner/MD/CD section:	Approx. 215 × 148 × 320 mm (w/h/d) incl. projecting parts and controls
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## Mass

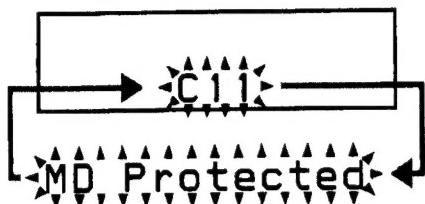
Amplifier/Tuner/MD/CD section:	Approx. 5.5 kg
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Supplied accessories:	Remote RM-MD313 (1) Sony batteries (2) AM loop aerial (1) FM lead aerial (1) WARRANTY CARD (1)
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Design and specifications are subject to change without notice.

## Self-diagnosis Display

This system has the Self-diagnosis display function to let you know if there is a system malfunction. The display shows a code made up of three letters and a message alternately to show you the problem. To solve the problem refer to the following list. If any problem persists, consult your nearest Sony dealer.



### C11/MD Protected

The MD is protected against erasure.  
→ Remove the MD and slide the tab to close the slot (page 28)

### C12/REC Error

Recording is not possible.  
→ Move the system to a stable place and start recording over from the beginning  
The MD is dirty or is scratched or the MD does not meet the standards.  
→ Change the MD with another one and start recording over from the beginning.

### C13/Disc Error

The MD deck cannot read the disc information correctly.  
→ Eject the MD once, then insert it again.

### C14/Disc Error

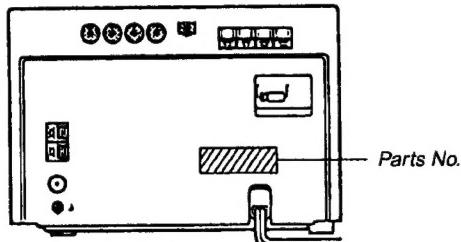
The MD deck cannot read the disc information correctly.  
→ Change the MD with another one.  
→ Erase all the recorded contents of the MD using the Erase function on page 39.

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## SECTION 1 SERVICING NOTES

### MODEL IDENTIFICATION — BACK PANEL —



MODEL	PARTS No.
AEP, UK, German, AED model	4-993-849-1□
Hong Kong, Malaysia, Singapore model	4-993-849-2□

- Abbreviation  
AED: North European

### NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

The laser diode in the optical pick-up block may suffer electrostatic break-down because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.

During repair, pay attention to electrostatic break-down and also use the procedure in the printed matter which is included in the repair parts.

The flexible board is easily damaged and should be handled with care.

### NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe from more than 30 cm away from the objective lens.

#### Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

#### Flexible Circuit Board Repairing

- Keep the temperature of soldering iron around 270 °C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

#### CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Laser component in this product is capable of emitting radiation exceeding the limit for Class 1.

#### Note:

Be sure to connect all wires (including FFC) in the MD section before applying power or ICs may be damaged.

#### SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK △ OR DOTTED LINE WITH MARK △ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

CLASS 1 LASER PRODUCT  
LUOKAN 1 LASERLAITE  
KLASS 1 LASERAPPARAT

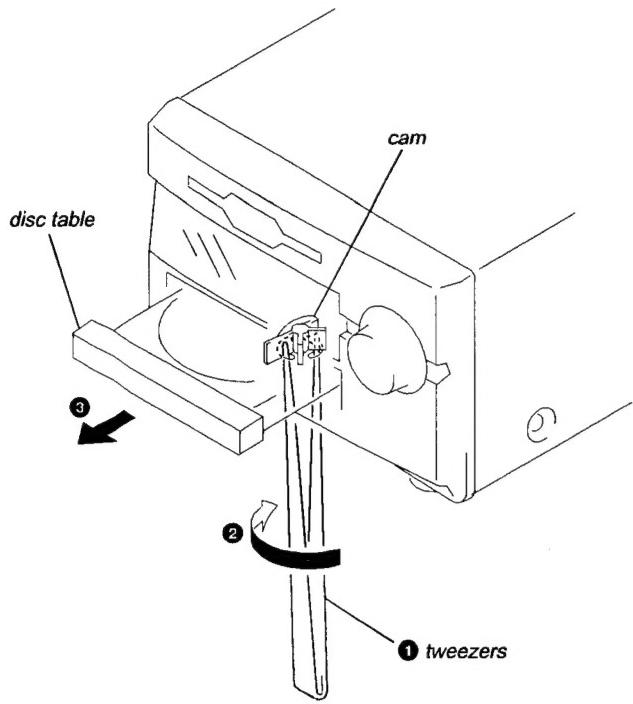
This appliance is classified as a CLASS 1 LASER product. The CLASS 1 LASER PRODUCT MARKING is located on the rear exterior.

CAUTION : INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM.
ADVARSEL : USYNLIG LASERSTRALING VED ÅBNING NÄR SIKKERHEDSAFSKÅPNERE ER UDE AF FUNKTION. UNDGÅ UDSETTELSE FOR STRÅLING.
VARO! : AVITÄÄSSÄ JA SUOSIAUANTUS OHJETTAESSA OLET ALTIINA LASERSÄTEILYLLÄ.
WARNING : LASERSTRÄNLING NÄR DENNA DEL ÄR ÖPPNÄD OCH SPÄNNEN ÄR URKOPPLAD.
ADVARSEL : USYNLIG LASERSTRALING NÄR DEKSEL ÄPNES UNNGÅ EKSPOSERING FÖR STRÅLEN.

This caution label is located inside the unit.

## DISC TABLE GETTING OUT PROCEDURE ON THE POWER SUPPLY IS OFF

1. Insert the tweezers to a hole on bottom of the chassis as shown a figure, then turn fully it toward direction ②.
2. Pull out the disc table.



## FLUORESCENT INDICATOR TUBE/BUTTONS/JOG/LEDs CHECK MODE

1. Press two buttons [PLAY MODE] and [MD] simultaneously for standby status.
2. Fluorescent indicator tube and LEDs are all turned on. Press [FUNCTION] button, the fluorescent indicator tube displays pattern change to cycle. Turning the [VOLUME] knob, and the each LED turned on to order.
3. Press [CD] button, and the Key check mode.
4. The fluorescent indicator tube displays "KEY=0 JOG=0". Each time a button is pressed, "KEY"=value increases. However, once a button is pressed, it is no longer taken into account. "JOG=" value increases like 1, 2, 3... if rotating [VOLUME] knob in clock width, or it decreases like 0, 9, 8... if rotating in counter clock width.
5. To exit from this mode, press order all buttons (15 buttons), the displays "KEY=OK", and press any button, or disconnect the power cord.

## SUB CLOCK CHECK

1. Connect an oscilloscope to IC601 pin ⑩ and ground of the MAIN board.
2. Press two buttons [PLAY MODE] and [MD] simultaneously, and the fluorescent indicator tube displays "32.768 kHz (91)".
3. To check the signal on oscilloscope becomes 32 kHz square wave.
4. Press [POWER] button to exit.

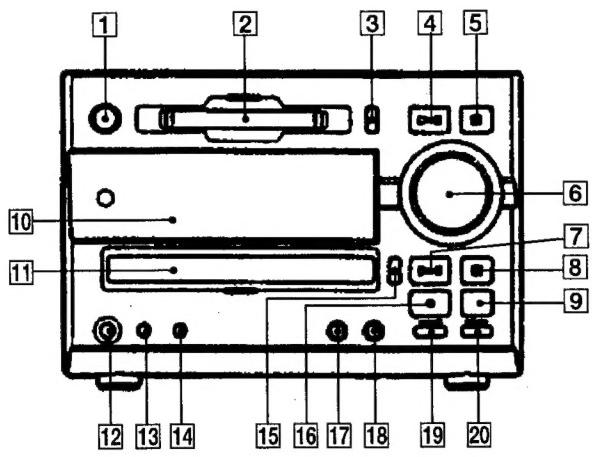
## TA CHECK

1. Press [POWER] button and system power On.
2. Press two buttons [PLAY MODE] and [CD] simultaneously, the fluorescent indicator tube displays "TA Test".
3. Rotation [VOLUME] knob in clock width a little, the fluorescent indicator tube displays "Volume MAX". Rotation [VOLUME] knob in counter clock width a little, the fluorescent indicator tube displays "Volume MIN".
4. Press [CD-MD SYNC] button, the fluorescent indicator tube displays "BASS/TRE MAX". Press [REPEAT] button, the fluorescent indicator tube displays "BASS/TRE MIN". Press [MD] button, the fluorescent indicator tube displays "ALL FLAT". Press [CD] button, the fluorescent indicator tube displays "SURROUND = ON".
5. Press [POWER] button to exit, and system power off.

## SECTION 2 GENERAL

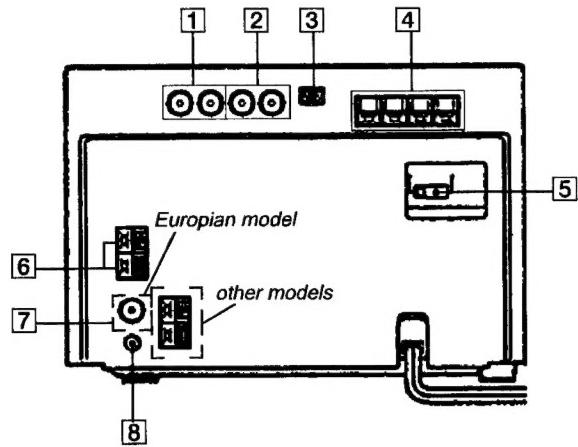
### LOCATION OF CNTROLS

– Front Panel –



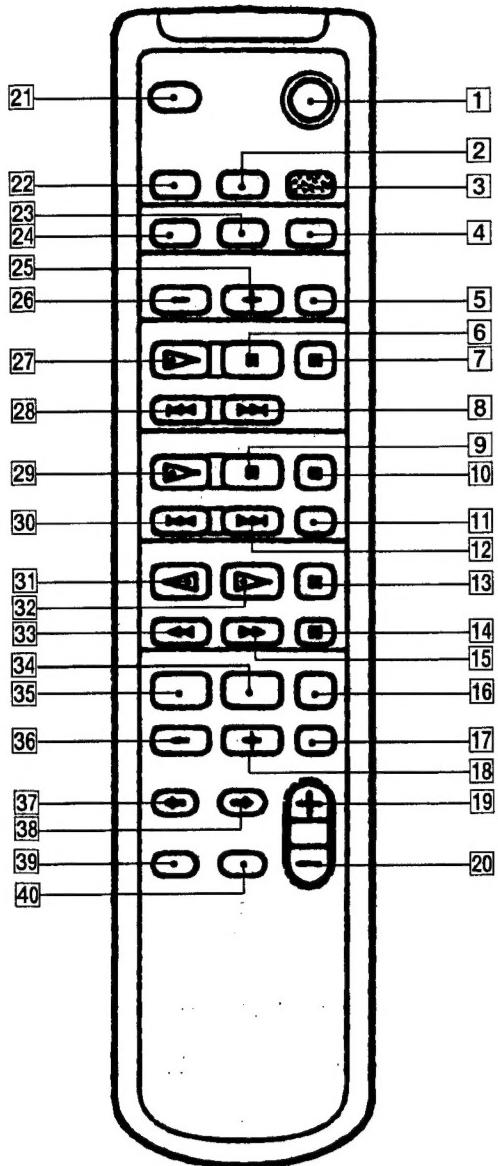
- |    |                                |
|----|--------------------------------|
| 1  | POWER button                   |
| 2  | MD disk slot                   |
| 3  | △ (MD) button                  |
| 4  | ▶II (MD) button                |
| 5  | ■ (MD) button                  |
| 6  | VOLUME control knob            |
| 7  | ▶II (CD) button                |
| 8  | ■ (CD) button                  |
| 9  | FUNCTION button                |
| 10 | Fluorescent indicator tube     |
| 11 | CD disc tray                   |
| 12 | PHONES jack                    |
| 13 | PLAY MODE • TUNING MODE button |
| 14 | REPEAT • STEREO/MONO button    |
| 15 | △ (CD) button                  |
| 16 | TUNER/BAND button              |
| 17 | CD-MD SYNC button              |
| 18 | ● REC button                   |
| 19 | MD/CD ▲◀◀ • TUNER – button     |
| 20 | MD/CD ▶▶▶ ● TUNER + button     |

– Rear Panel –



- |   |   |
|---|---|
| 1 | TAPE OUTPUT pin jack                                |
| 2 | TAPE INPUT pin jack                                 |
| 3 | AU BUS jack   |
| 4 | SPEAKER terminal                                    |
| 5 | VOLTAGE SELECTOR switch<br>(Except European models) |
| 6 | AM ANTENNA terminal                                 |
| 7 | FM ANTENNA terminal                                 |
| 8 | SIGNAL GND terminal                                 |

**- Remote controller -**



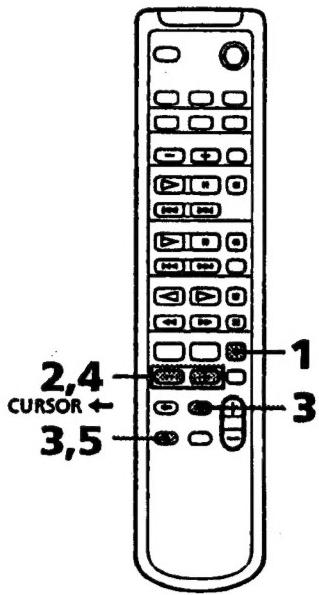
- 1 POWER button
- 2 DBFB button
- 3 MUSIC MENU button
- 4 SCROLL button
- 5 BAND button
- 6 MD II button
- 7 MD ■ button
- 8 MD ►► button
- 9 CD II button
- 10 CD ■ button
- 11 LOOP button
- 12 CD ►► button
- 13 TAPE ■ button
- 14 TAPE II button
- 15 TAPE ► button
- 16 CLOCK/TIMER SET, button
- 17 DISPLAY button
- 18 + button
- 19 VOL + button
- 20 VOL - button
- 21 SLEEP button
- 22 FUNCTION button
- 23 REPEAT button
- 24 PLAY MODE button
- 25 PRESET + button
- 26 PRESET - button
- 27 MD ► button
- 28 MD ■ button
- 29 CD ► button
- 30 CD ■ button
- 31 TAPE ■ button
- 32 TAPE ► button
- 33 TAPE ■ button
- 34 CLOCK/TIMER SELECT button
- 35 EDIT button
- 36 - button
- 37 CURSOR ← button
- 38 CURSOR → button
- 39 ENTER/YES button
- 40 CANCEL/NO button

## Step 2: Setting the time

You can set the time, when you turn off the system power. You must set the time before you can use the timer functions.

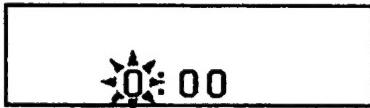
The clock is on a 24-hour system for the European model, and a 12-hour system for other models.

The European model is used for illustration purpose.



- 1 Press CLOCK/TIMER SET.  
The clock appears and the hour indication flashes.

- 2 Press +/− to set the hour.



- 3 Press ENTER/YES or CURSOR →.  
The minute indication flashes.



- 4 Press +/− to set the minute.

- 5 Press ENTER/YES.  
The clock starts.

### If you have made a mistake

Press CURSOR ← or → repeatedly so that the incorrect item flashes, then set it again.

### To change the preset time

When you turn off the system power, you can change the preset time

- 1 Press CLOCK/TIMER SET.
- 2 Press +/− repeatedly until "CLOCK SET?" appears.
- 3 Press ENTER/YES.
- 4 Repeat steps 2 through 5.

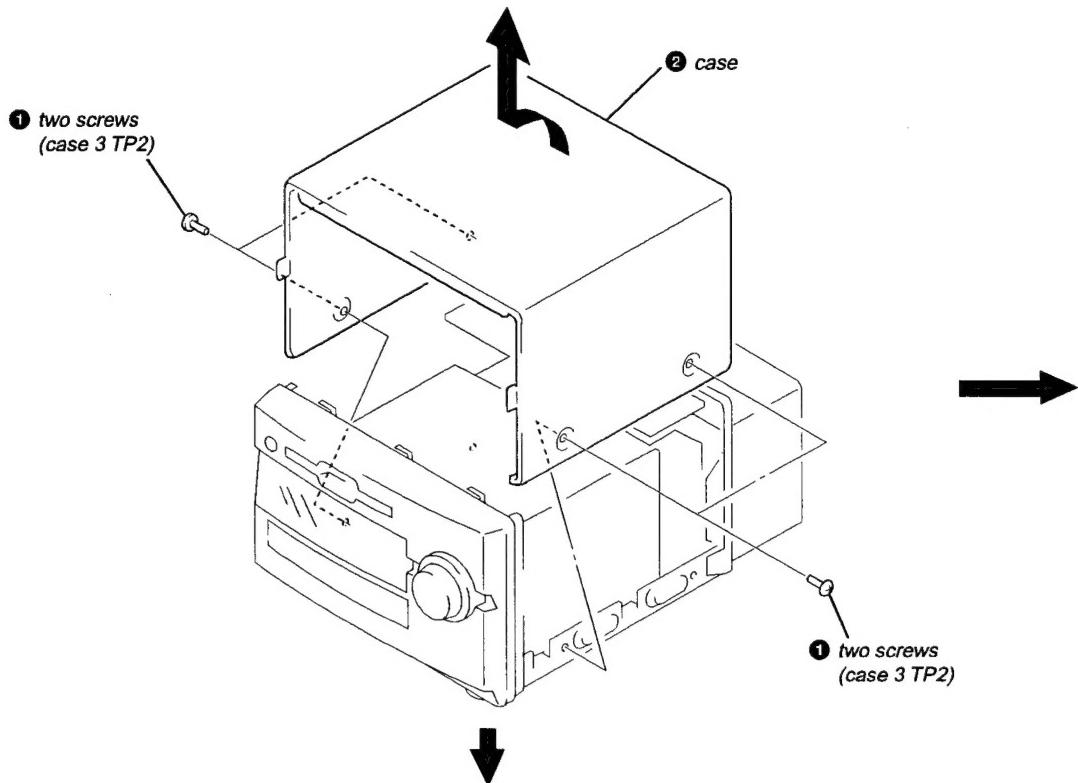
### Tips

- The built-in clock shows the time in the display while the power is off.
- The upper dot flashes for the first half of a minute (0 to 29 seconds), and the lower dot flashes for the last half of a minute (30 to 59 seconds).

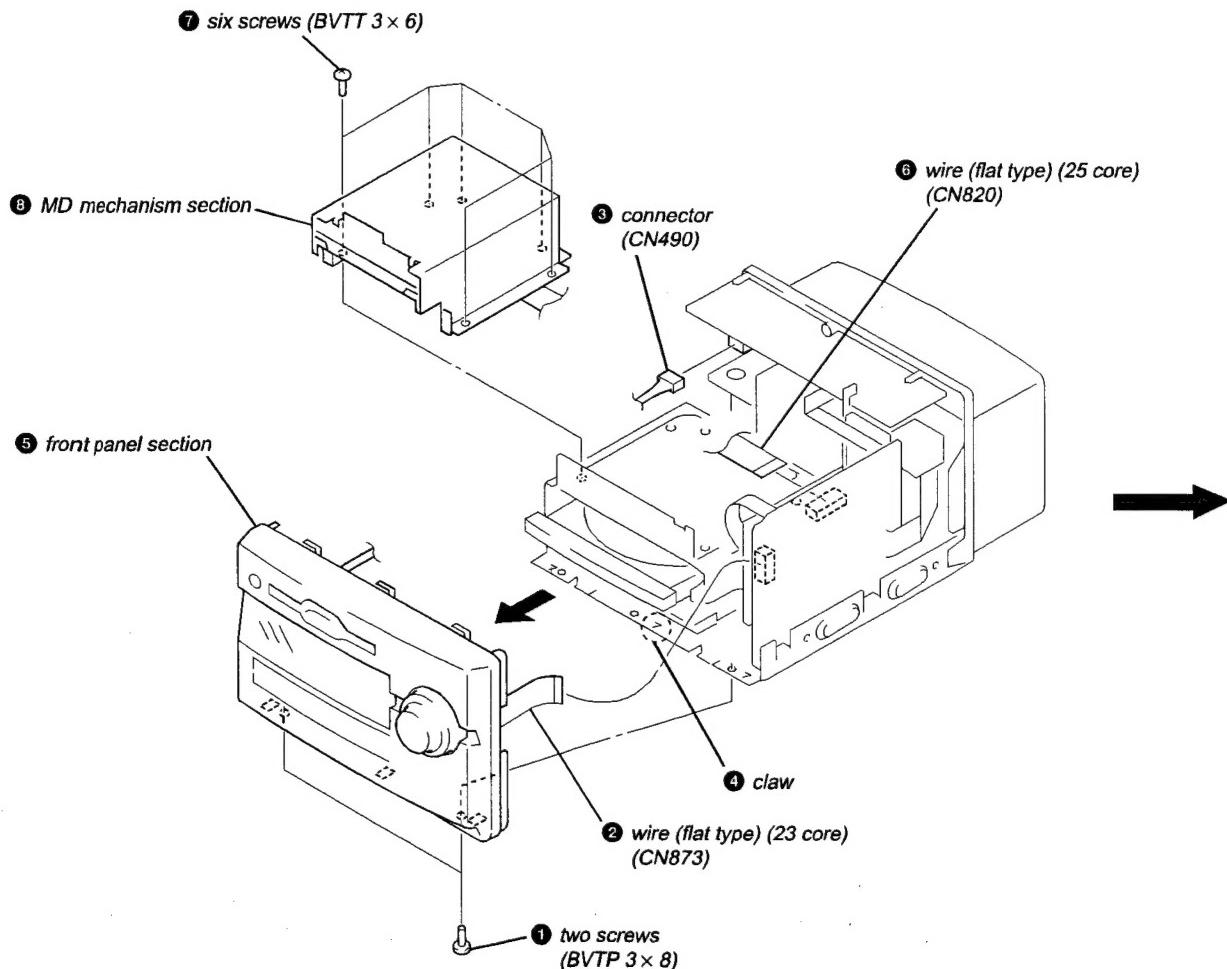
## SECTION 3 DISASSEMBLY

**Note:** Follow the disassembly procedure in the numerical order given.

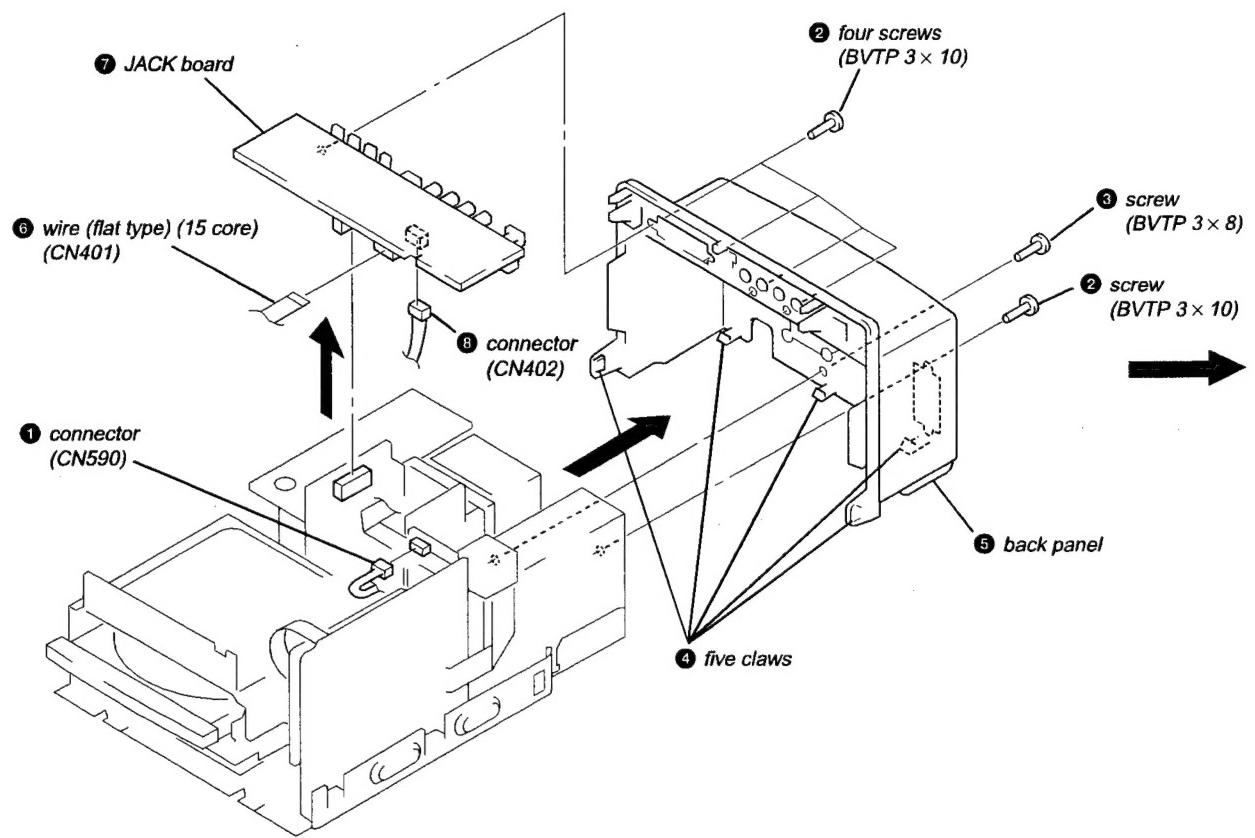
### CASE



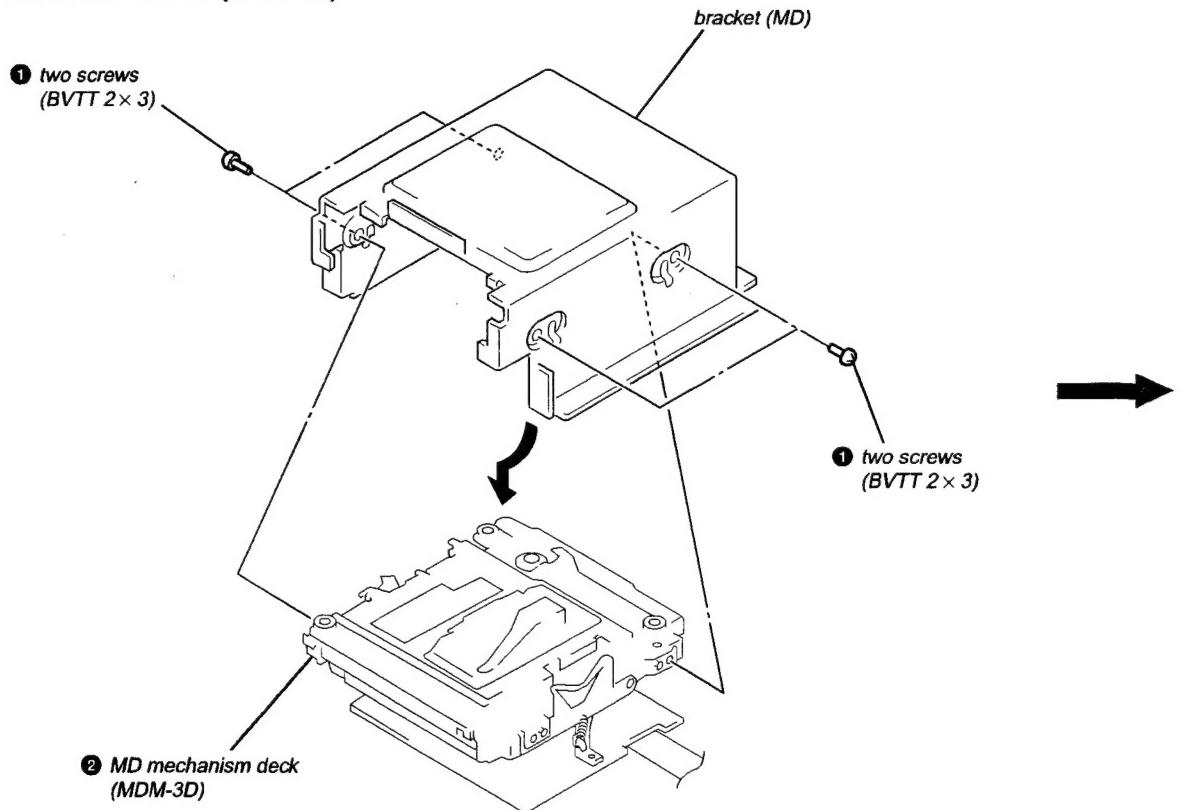
### FRONT PANEL/MD MECHANISM DECK SECTION



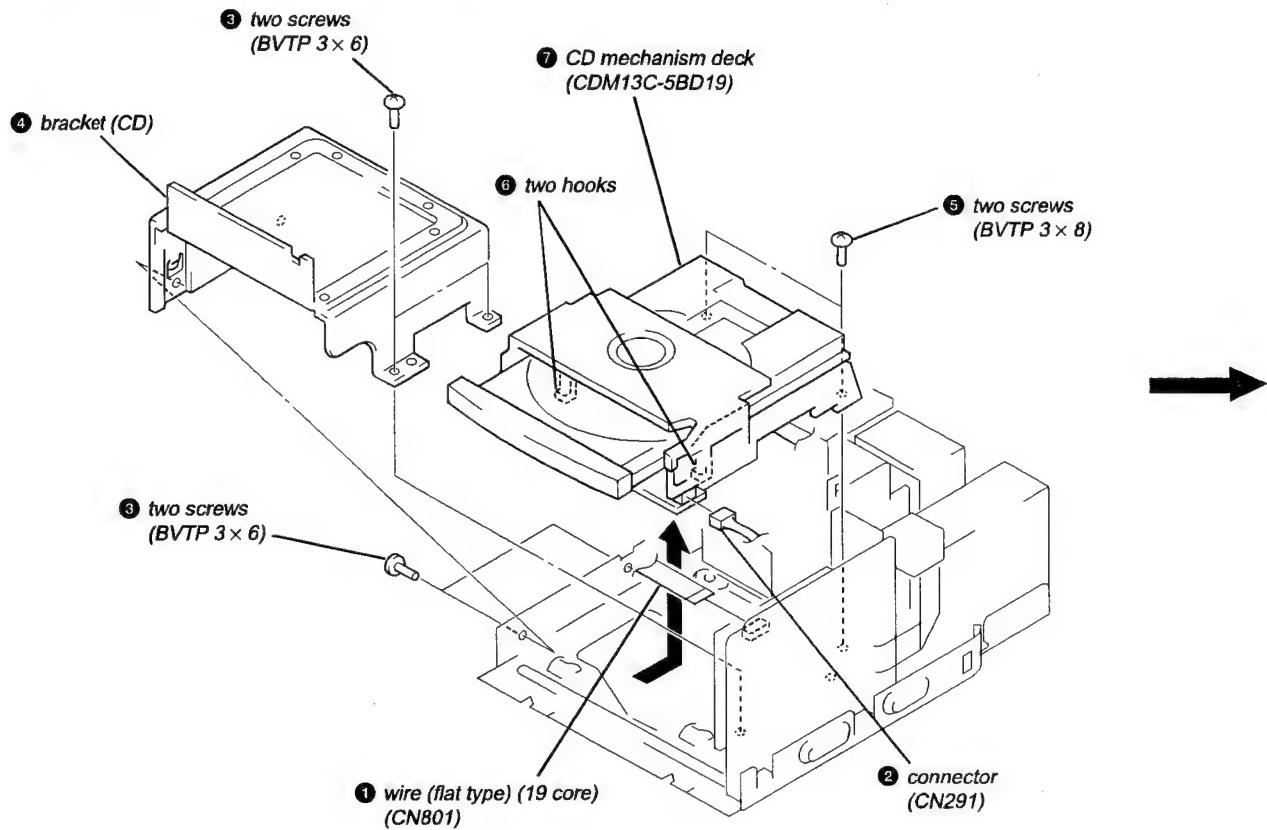
## BACK PANEL, JACK BOARD



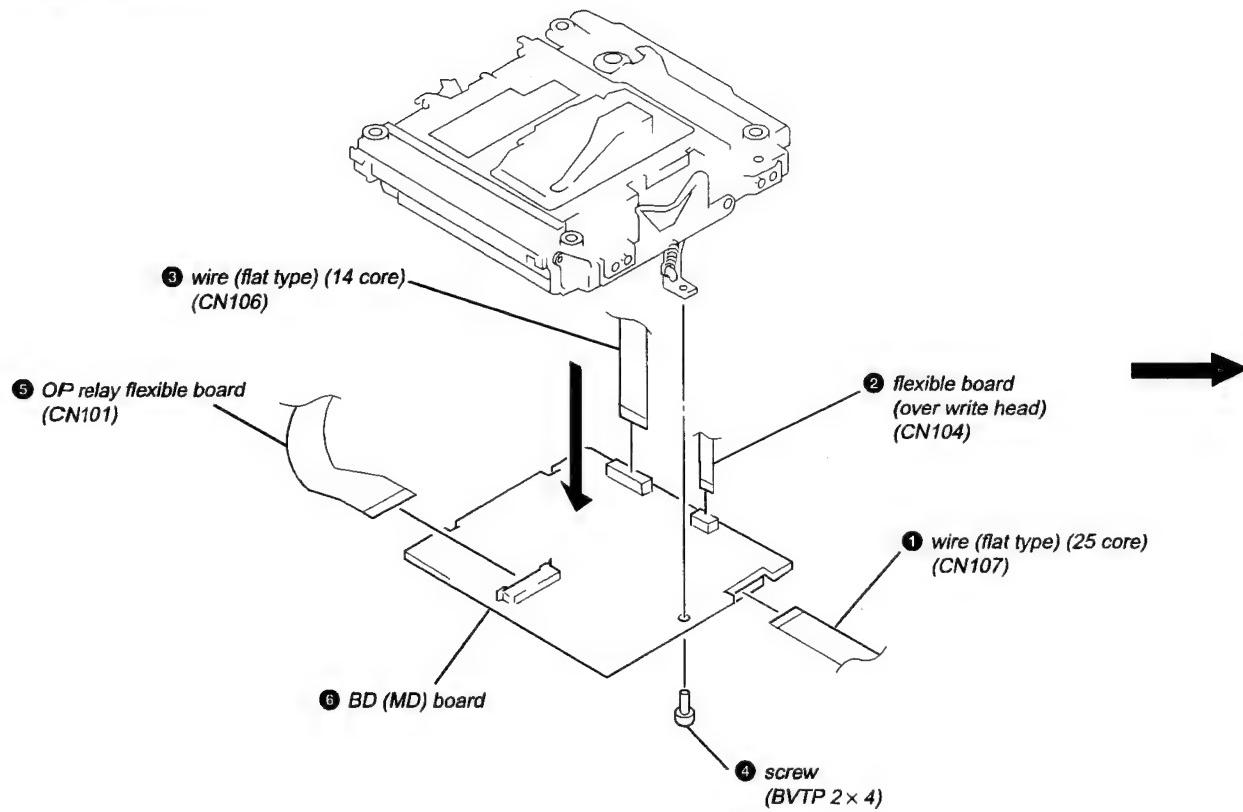
## MD MECHANISM DECK (MDM-3D)



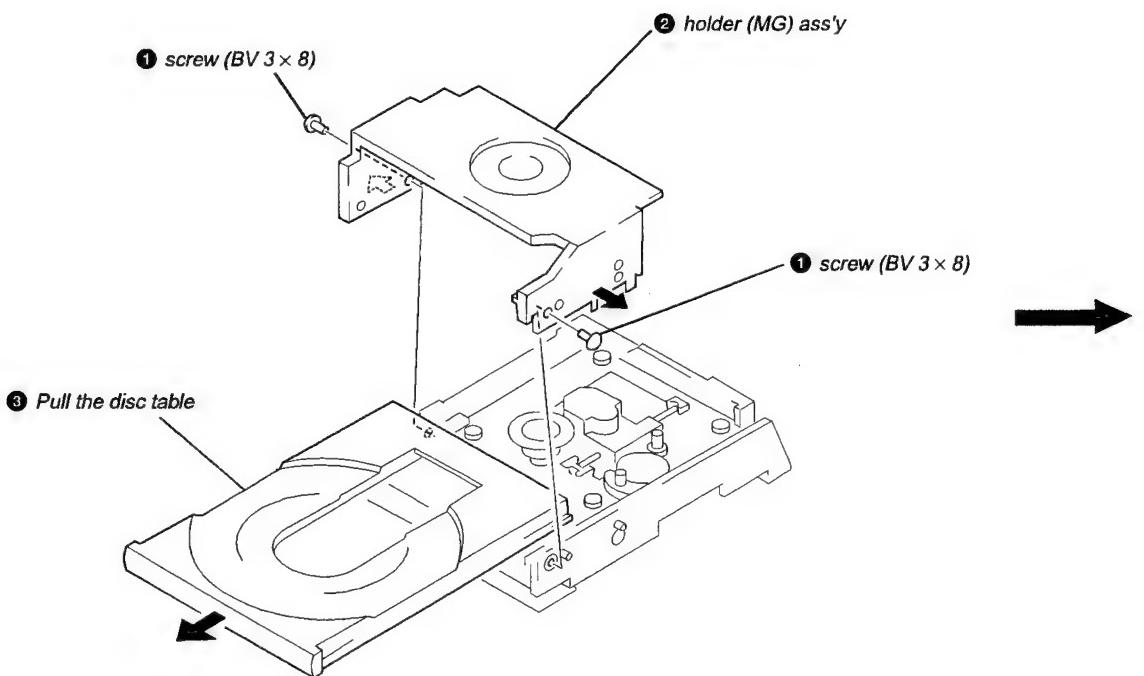
## CD MECHANISM DECK (CDM13C-5BD19)



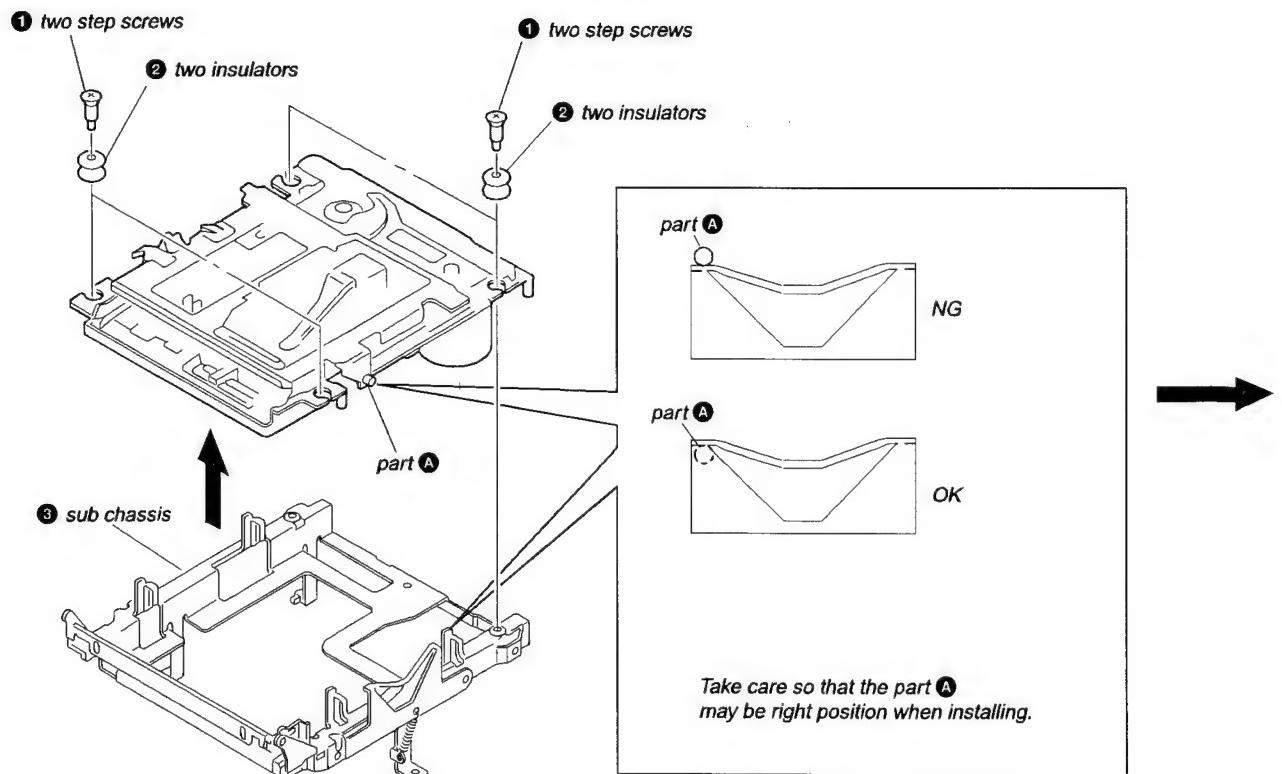
## BD (MD) BOARD



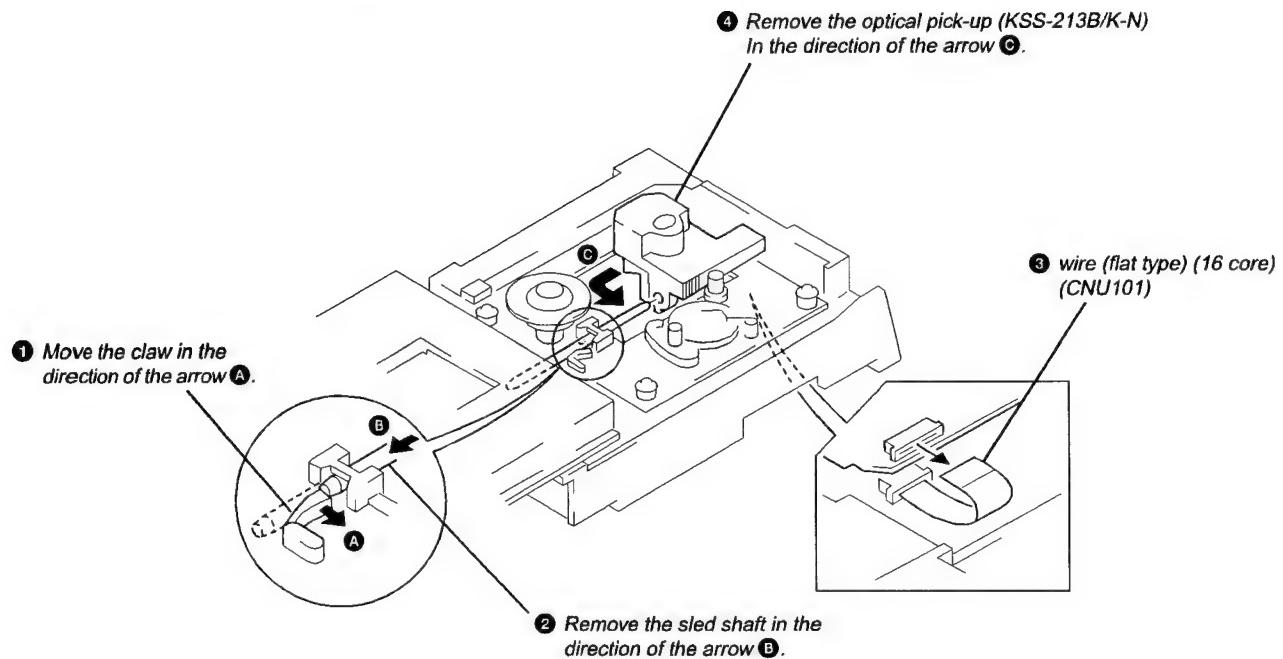
## DISC TABLE



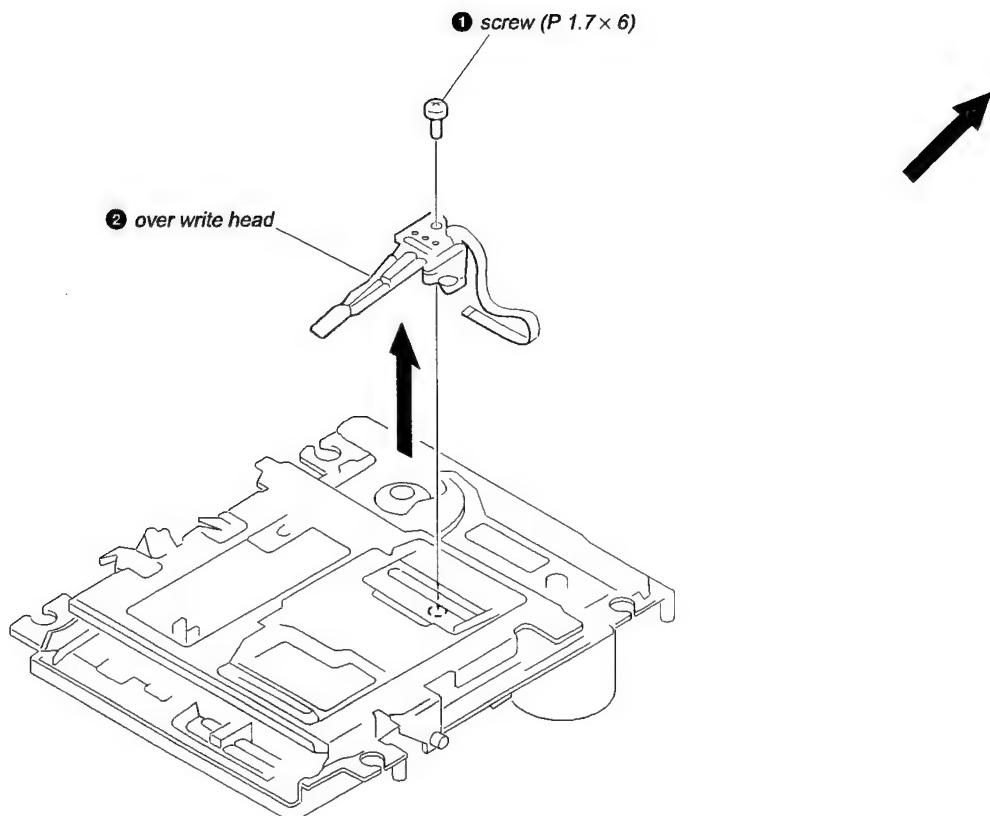
## SUB CHASSIS



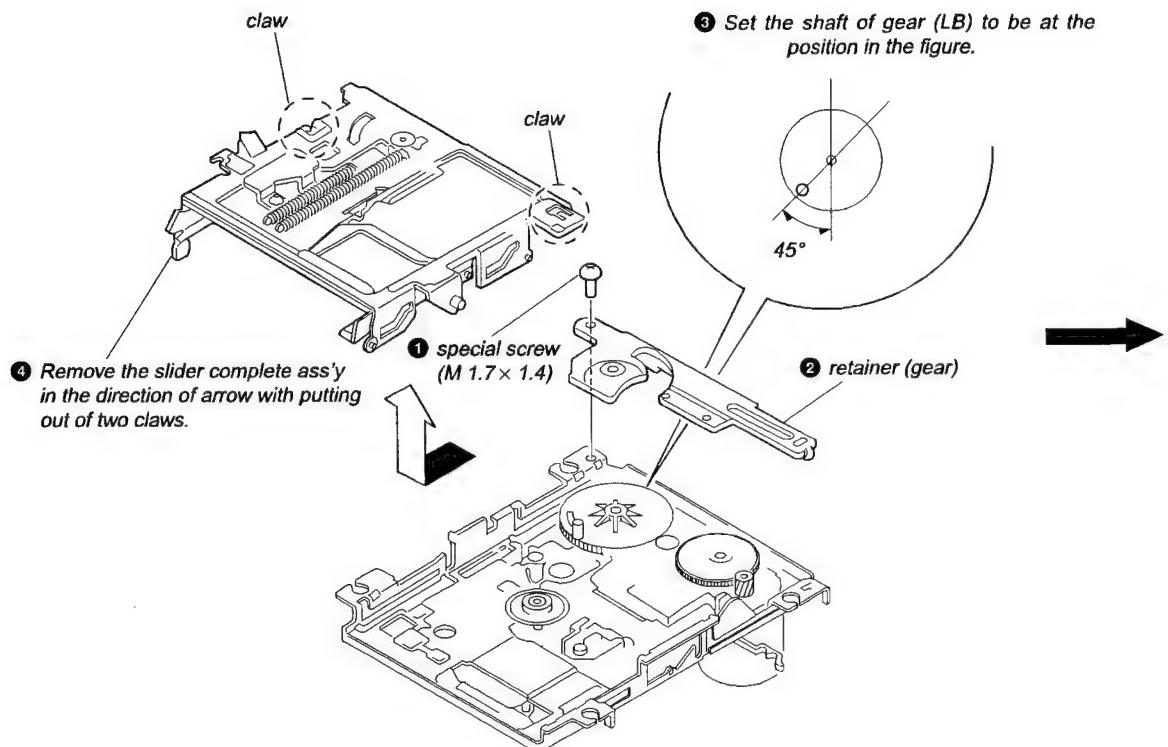
## OPTICAL PICK-UP (KSS-213B/K-N)



## OVER WRITE HEAD

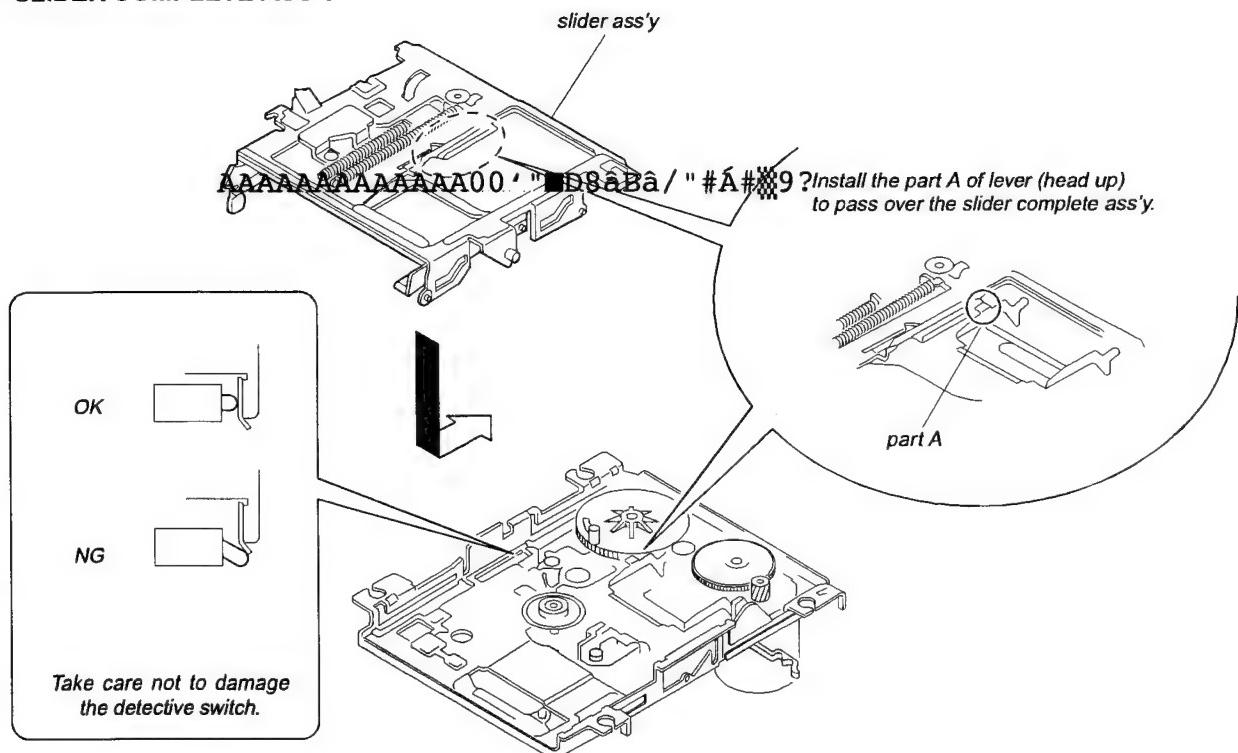


## SLIDER COMPLETE ASS'Y

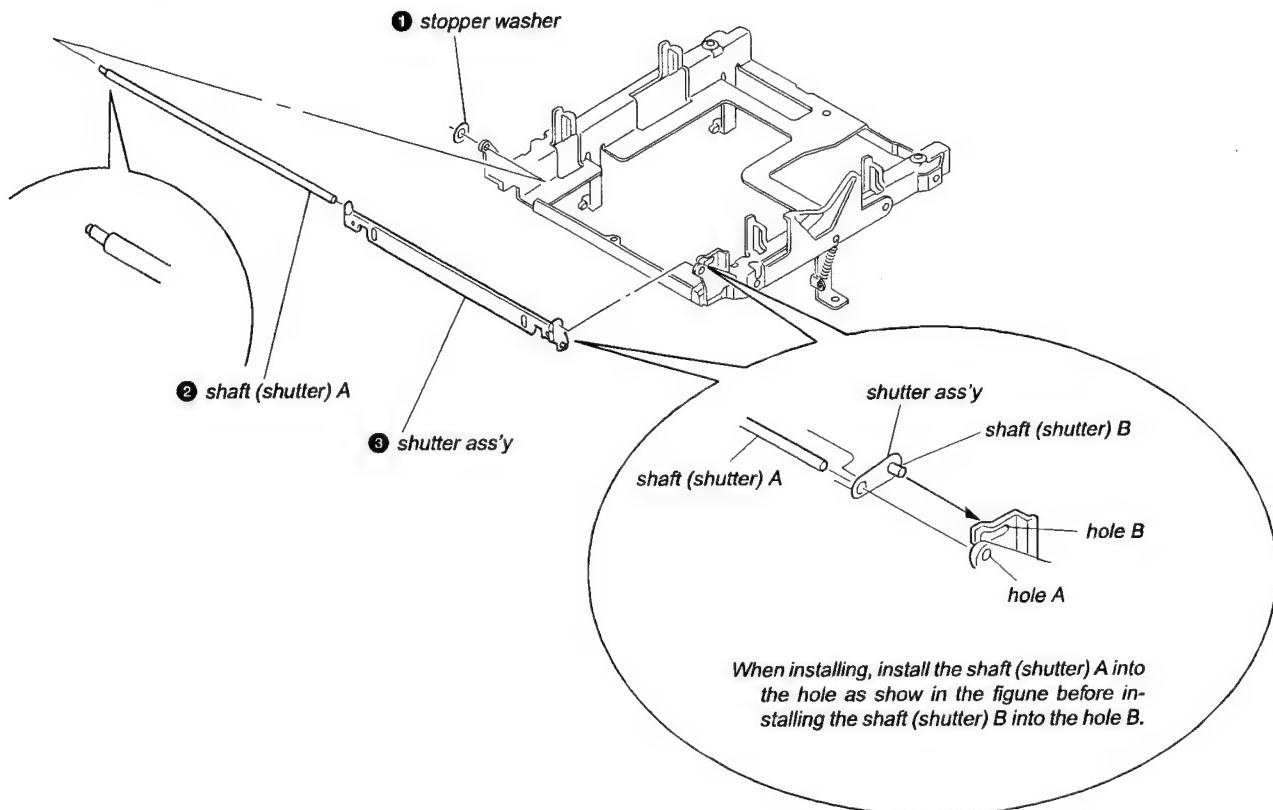


## NOTE FOR INSTALLATION

### • SLIDER COMPLETE ASS'Y



## SHUTTER ASS'Y



## SECTION 4 TEST MODE

### 4-1. PRECAUTIONS FOR USE OF TEST MODE

1. As loading related operations will be performed regardless of the test mode operations being performed, be sure to check that the disc is stopped before setting and removing it. Even if the **[MD]** button is pressed while the disc is rotating during continuous playback, continuous recording, etc., the disc will not stop rotating. Therefore, it will be ejected while rotating. Be sure to press the **[MD]** button after pressing the **[CD]** button and the rotation of disc is stopped.
2. The erasing-protection tab is not detected in the test mode. Therefore, operating in the recording laser emission mode and pressing the **[REC]** button, the recorded contents will be erased regardless of the position of the tab. When using a disc that is not to be erased in the test mode, be careful not to enter the continuous recording mode and traverse adjustment mode. But "CREC MODE", "EF MO CHECK" and "EF MO ADJUST" is detect the erasing-protection tab and recording laser power off.

#### 4-1-1. Recording Laser Emission Mode and Operating Button

1. Continuous recording mode (CREC MODE)
2. Traverse adjustment mode (EF MO ADJUST)
3. Laser power adjustment mode (LDPWR ADJUST)
4. Laser power check mode (LDPWR CHECK)
5. When pressing the **[REC]** button.
6. Traverse checking mode (EF MO CHECK)

### 4-2. SETTING THE TEST MODE

With the power supply to the set in OFF (standby) status, while pressing the **PLAY MODE** button and **[MD]** button simultaneously, then release the button.

### 4-3. RELEASING THE TEST MODE

Press the **REPEAT** button, and the power is turned OFF (standby status), and the set becomes ready for normal operation.

### 4-4. BASIC OPERATIONS OF THE TEST MODE

All operations are performed using the VOLUME knob button, **[CD]** button, and **[CD]** button. The functions of these buttons and knob are as follows.

**Table 4-1.**

Button & Knob	Function
VOLUME knob	Changes parameters and modes.
<b>[CD]</b> button	Proceeds onto the next step. Finalizes input.
<b>[CD]</b> button	Returns to previous step. Stops operations.

### 4-5. SELECTING THE TEST MODE

Thirteen test modes are selected by turn VOLUME.

**Table 4-2.**

Display	Contents
TEMP CHECK	Temperature compensation offset check
LDPWR CHECK	Laser power check
EF MO CHECK	Traverse (E-F balance) check
EF CD CHECK	Travers (Pre mastered disk) check
FBIAS CHECK	Focus bias check
CPLAY MODE	Continous playback mode
CREC MODE	Continous recording mode
Scurve CHECK	S-curve check (*1)
VERIFY MODE	Non-volatile memory check (*1)
DETRK CHECK	Detrack check
TEMP ADJUST	Temperature compensation offset adjustment
LDPWR ADJUST	Laser power adjustment
EF MO ADJUST	Traverse (E-F balance) adjustment
EF CD ADJUST	Traverse (Pre mastered disk) adjustment
FBIAS ADJUST	Focus bias adjustment
EEP MODE	Non-volatile memory mode (*1)
MANUAL CMD	Manual command transfer mode (*1)
SVDATA READ	Data reading out mode (*1)
ERR DP MODE	Operation of error histories memory
SLED MOVE	Operation of sled moter (*1)
ACCESS MODE	Access check (*1)
0920 CHECK	Outermost periphery check (*1)
WRITE sure?	Non-volatile memory initialize
HEAD ADJUST	HEAD adjustment check (*1)
CPLAY2MODE	Continous playback mode
CREC2MODE	Continous recording mode

- For detailed description of each adjustment mode, refer to the "5. ELECTRICAL ADJUSTMENTS".
- If a different adjustment mode has been selected by mistake, press the **[CD]** button to exit from it.

\*1: The EEP MODE, Scurve CHECK, MANUAL CMD VERIFY MODE, SLED MODE, ACCESS MODE, 0920 CHECK, WRITE sure?, HEAD ADJUST and SVDATA READ are not used in servicing. If set accidentally, press the **POWER** button immediately to exit it.

## 4-6. OPERATING THE CONTINUOUS PLAYBACK MODE

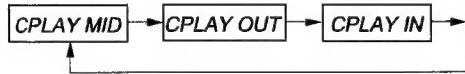
### 4-6-1. Entering the Continuous Playback Mode

1. Set the disc in the unit. (Whichever recordable discs or discs for playback only are available.)
2. Turn the VOLUME and display "CPLAY MODE".
3. Press the **[CD]** button to change the display to "CPLAY MID".
4. When access completes, the display changes to "C = AD =)".

Note: The numbers " " displayed show you error rates and ADER.

### 4-6-2. Changing the Parts to be Played-back

1. Press the **[CD]** button during continuous playback to change the display as below.



2. When access completes, the display changes to "C1 = AD =)".

Note: The numbers " " displayed show you error rates and ADER.

### 4-6-3. Ending the Continuous Playback Mode

1. Press the **[CD]** button. The display will change to "CPLAY MODE".
2. Press the **[MD]** button and remove the disc.

#### Notes:

1. The playback start address for IN, MID, and OUT are as follows.  
IN : 40h cluster  
MID : 300h cluster  
OUT : 700h cluster  
In case you want to display the address of the playback position on the display, press the **[CD]** button and display "CPLAY ( )".
2. The **[CD]** button can be used to stop playing anytime.

## 4-7. OPERATING THE CONTINUOUS RECORDING MODE

### 4-7-1. Entering the Continuous Recording Mode

1. Set the MO disc in the unit. (Refer to note 3.)
2. Turn the VOLUME and display "CREC MODE".
3. Press the **[CD]** button to change the display to "CREC MID".
4. When access completes, the display changes to "CREC ( )" and **[REC]** lights up.

Note: The numbers " " displayed shows you the recording position address.

### 4-7-2. Changing the Parts to be Recorded

1. When the **[CD]** button is pressed during continuous recording, the display changes as below. (**[REC]** indication turns off during change-over of display.)



2. When access completes, the display changes to "CREC ( )" and **[REC]** lights up.

Note: The numbers " " displayed shows you the recording position address.

### 4-7-3. Ending the Continuous Recording Mode

1. Press the **[CD]** button. The display will change to "CREC MODE" and **[REC]** goes off.
2. Press the **[MD]** button and remove the disc.

#### Notes:

1. The recording start address for IN, MID, and OUT are as follows.  
IN : 40h cluster  
MID : 300h cluster  
OUT : 700h cluster  
2. The **[CD]** button can be used to stop recording anytime.  
3. During the test mode, the erasing-protection tab will not be detected. Therefore be careful not to set the continuous recording mode when a disc not to be erased is set in the unit.  
4. Do not perform continuous recording for long periods of time above 5 minutes.  
5. During continuous recording, be careful not to apply vibration.

## 4-8. EEP MODE

This mode reads and writes the contents of the non-volatile memory.

It is not used in servicing. If set accidentally, press the **[CD]** button immediately to exit it.

## 4-9. ERROR HISTORY MODE

### 4-9-1. Entering the Error History Mode

1. Turn the VOLUME knob and display "ERR DP MODE".
2. Press the  (CD) button and display "total rec".

### 4-9-2. Ending the Error History Mode.

1. Press the  (CD) button. The display will change to "ERR DP MODE".

### 4-9-3. Selecting the Memory to be History

Five memory types are selected by press  button.

**Table 4-3**

No.	Display	Contents	Function
1	total rec	Record time	Total time of laser power high. About 20% of total recording time.
2	total play	playback time	Total time of playback.
3	retry err	Total retry error	Total count of record and playback retry error.
4	total err	All error count	Total count of error.
5	err history	Error history	Error contents display.
*	err refresh	Error refresh	Clear the error histories memory

\* Error refresh with optical pick-up exchange, another not execute.

### 4-9-4. Operating the displayed histories.

- Record time

1. Turn the VOLUME knob and display "total rec".
2. Press the  (CD) button and display "r h".

Note • r : total time

- Playback time

1. Turn the VOLUME knob and display "total play".
2. Press the  (CD) button and display "p h".

Note • p : total time

- Total retry error

1. Turn the VOLUME knob and display "retry err".
2. Press the  (CD) button and display "r p ".

Note • r : Record total error

• p : Playback total error

- All error count

1. Turn the VOLUME knob and display "total err".
2. Press the  (CD) button and display "total ".

Note • total : total error

- Error history

1. Turn the VOLUME knob and display "err history".
2. Press the  (CD) button and display "0 C ".

Note • 0 : Number of error

• C : Error code (See table 4-4)

### 4-9-5. Ending the displayed history

1. Press the  button, the display will change to memory types.

**Table 4-4**

Error Code	Contents	Error Code	Contents
00	No error	05	Out of FOK
01	Disc error PTOC does not read	06	Focus does not work
		07	Retry of record
		08	Record retry error
02	DISC error UTOC does not read	09	Retry of Playback
		0A	Playback retry error
03	Loading error		
04	Address does not read		

## 4-10. FUNCTIONS OF OTHER BUTTONS

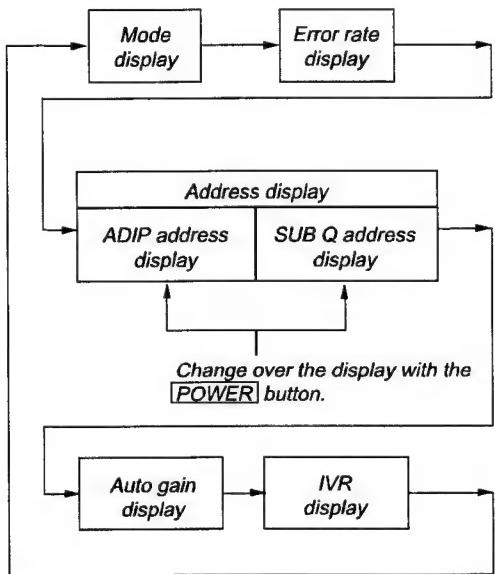
**Table 4-3.**

Button	Contents
● REC	Turns recording on/off when pressed during continuous playback.
△ (MD)	Disc eject

Note: The erasing-protection tab is not detected during the test mode. Recording will start regardless of the position of the erasing-protection tab when the [● REC] button is pressed.

## 4-11. TEST MODE DISPLAYS

Each time the □ (CD) button is pressed, the display changes in the following order.



Note: Auto gain display and IVR display are not used in servicing.

1. MODE display  
Displays "TEMP ADJUST", "CPLAY MODE", etc..

2. Error rate display  
Error rates are displayed as follows.  
C1= AD=  
C1= : Indicates C1 error  
AD= : Indicates ADER

3. Address display  
Address are displayed as follows.  
h= a= (MO groove)  
With this display, if [POWER] button is pressed, the following will be displayed.  
h= s= (MO pit and CD)  
h=: Header address  
s=: SUB Q address  
a=: ADIP address

Note: “—” is displayed when the address cannot be read.

4. Auto gain display  
Auto gain are displayed as follows.  
AG F= T=  
F= Focus auto gain collection value  
T= Tracking auto gain collection value

## 4-12. MEANINGS OF OTHER DISPLAYS

**Table 4-4.**

Display	Contents	
	Light	Off
[REC]	Recording mode on	Recording mode off
DISC	High reflection rate disc	Low reflection rate disc

## SECTION 5 ELECTRICAL ADJUSTMENT

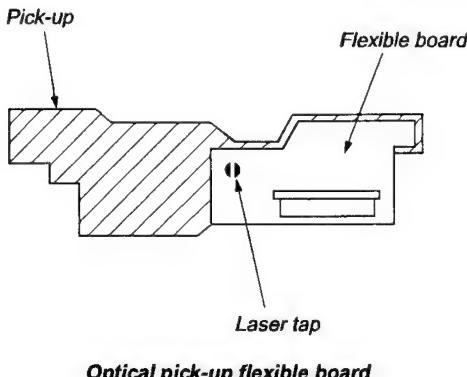
### MD SECTION

#### 5-1. PRECAUTIONS FOR CHECKING LASER DIODE EMISSION

To check the emission of the laser diode during adjustments, never view directly from the top as this may lose your eyesight.

#### 5-2. PRECAUTIONS FOR USE OF OPTICAL PICK-UP (KMS-260A)

As the laser diode in the optical pick-up is easily damaged by static electricity, solder the laser tap of the flexible board when using it. Before disconnecting the connector, desolder first. Before connecting the connector, be careful not to remove the solder. Also take adequate measures to prevent damage by static electricity. Handle the flexible board with care as it breaks easily.



#### 5-3. PRECAUTIONS FOR ADJUSTMENTS

- 1) When replacing the following parts, perform the adjustments and checks with  in the order shown in the following table.

*Table 5-1*

	Optical Pick-up	BD board		
		IC171	D101	IC101, IC121, IC192
1. Temperature compensation offset adjustment	×	<input type="circle"/>	<input type="circle"/>	<input type="circle"/>
2. Laser power adjustment	<input type="circle"/>	<input type="circle"/>	×	<input type="circle"/>
3. Traverse adjustment	<input type="circle"/>	<input type="circle"/>	×	<input type="circle"/>
4. Focus bias adjustment	<input type="circle"/>	<input type="circle"/>	×	<input type="circle"/>
5. Error rate check	<input type="circle"/>	<input type="circle"/>	×	<input type="circle"/>

- 2) Set the test mode when performing adjustments.  
After completing the adjustments, exit the test mode.
- 3) Perform the adjustments in the order shown.
- 4) Use the following tools and measuring devices.
  - Check Disc (MD) TDYS-1  
(Parts No. 4-963-646-01)
  - Laser power meter LPM-8001  
(Parts No. J-2501-046-A)
  - Oscilloscope (Measure after performing CAL of probe.)
  - Digital voltmeter
  - Thermometer
- 5) When observing several signals on the oscilloscope, etc., make sure that VC and ground do not connect inside the oscilloscope.  
(VC and ground will become short-circuited)

#### 5-4. CREATING MO CONTINUOUSLY RECORDED DISC

\* This disc is used in focus bias adjustment and error rate check.  
The following describes how to create a MO continuous recording disc.

1. Set the test mode.
2. Insert a MO disc (blank disc) commercially available.
3. Turn the VOLUME knob display "CREC MODE".
4. Press the (CD) button and display "CREC MID".  
"CREC (0300)" is displayed for a moment and recording starts.
5. Complete recording within 5 minutes.
6. Press the (CD) button and stop recording.
7. Press the (MD) button and remove the MO disc.

The above has been how to create a continuous recording data for the focus bias adjustment and error rate check.

**Note:** Be careful not to apply vibration during continuous recording.

## 5-5. TEMPERATURE COMPENSATION OFFSET ADJUSTMENT

Save the temperature data at that time in the non-volatile memory as 25 °C reference data.

**Notes:**

1. Usually, do not perform this adjustment.
2. Perform this adjustment in an ambient temperature of 22 °C to 28 °C. Perform it immediately after the power is turned on when the internal temperature of the unit is the same as the ambient temperature of 22 °C to 28 °C.
3. When D101 has been replaced, perform this adjustment after the temperature of this part has become the ambient temperature.

**Adjusting Method:**

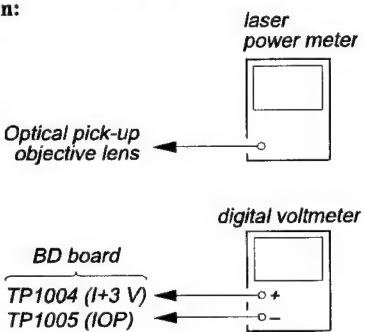
1. Turn the VOLUME knob and display "TEMP ADJUST".
2. Press the **[ ]** (CD) button to change the display to "TEMP = " (The numbers " " displayed shows you the current temperature.)
3. To save the data, press the **[ ]** (CD) button.  
When not saving the data, press the **[ ]** (CD) button.
4. When the **[ ]** (CD) button is pressed, "TEMP= SAVE" will be displayed for some time, followed by "TEMP ADJUST".  
When the **[ ]** (CD) button is pressed, "TEMP ADJUST" will be displayed immediately.

**Specifications:**

The temperature should be within "E0-EF", "F0-FF", "00-0F", "10-1F" and "20-2F".

## 5-6. LASER POWER ADJUSTMENT

**Connection:**



**Adjusting Method:**

1. Set the laser power meter on the objective lens of the optical pick-up. (When it cannot be set properly, press the **[◀◀◀]** button or **[▶▶▶]** button and move the optical pick-up.)  
Connect the digital voltmeter to TP1004 (I+3 V) and TP1005 (IOP) of the BD board.
2. Turn the VOLUME knob and display "LDPWR ADJUST". (Laser power: for adjustment)
3. Press the **[ ]** (CD) button and display "LD 0.9 mW \$ ".
4. Turn the VOLUME knob so that the reading of the laser power meter becomes 0.82 to 0.91 mW.  
Set the range control on the laser power meter to 10 mW, then press the **[ ]** (CD) button to save the adjustment result in the non-volatile memory.  
("LD SAVE \$ " will be displayed for a moment.)
5. Then "LD 7.0 mW \$ " will be displayed.
6. Turn the VOLUME knob so that the reading of the laser power meter becomes 6.9 to 7.1 mW, press the **[ ]** (CD) button and save the adjustment result in the nonvolatile memory.  
("LD SAVE \$ " will be displayed for a moment.)
- Note:** Do not perform the emission with 7.0 mW more than 15 seconds continuously.
7. Turn the VOLUME knob and display "LDPWR CHECK".
8. Press the **[ ]** (CD) button and display "LD 0.9 mW \$ ".  
Check that the reading of the laser power meter becomes 0.80 to 0.96 mW.
9. Press the **[ ]** (CD) button and display "LD 7.0 mW \$ ".  
Check that the reading of the laser power meter and digital voltmeter satisfy the specified value.

**Specification:**

Laser power meter reading:  $7.0 \pm 0.2$  mW

Digital voltmeter reading : Optical pick-up displayed value  $\pm 10\%$

*(Optical pick-up label)*

KMS260A  
27X40  
B0567

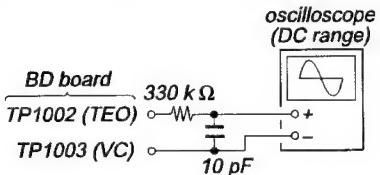
IOP=56.7 mA in this case

IOP (mA) = Digital voltmeter reading (mV)/1 ( $\Omega$ )

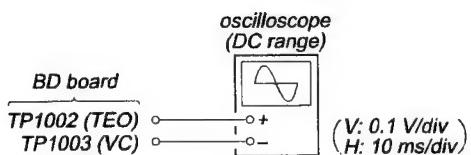
10. Press the **[ ]** (CD) button and display "LDPWR CHECK", and stop the laser emission.  
(The **[ ]** (CD) button is effective at all times to stop the laser emission.)

## 5-7. TRAVERSE (E-F BALANCE) ADJUSTMENT

- Note 1:** Data will be erased during MO reading if a recorded disc is used in this adjustment.
- Note 2:** If the traverse waveform is not clear, connect the oscilloscope as shown in the following figure so that it can be seen more clearly.

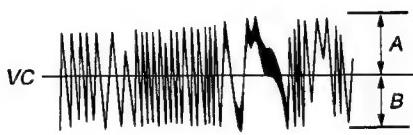


**Connection:**



### Adjusting Method:

- Connect an oscilloscope to TP1002 (TEO) and TP1003 (VC) of the BD board.
  - Load a MO disc (any available on the market). (Refer to note 1.)
  - Press the **[◀◀◀]** button or **[▶▶▶]** button and move the optical pick-up outside the pit.
  - Turn the VOLUME knob and display "EF MO ADJUST".
  - Press the **[■]** (CD) button and display "EFB= MO-R". (Laser power READ power/focus servo ON/tracking servo OFF/spindle (S) servo ON)
  - Turn the VOLUME knob so that the waveforms of the oscilloscope becomes the specified value. (When the VOLUME knob is turned, the " " of "EFB= MO-R" changes and the waveform changes.)
- In this adjustment, waveform varies at intervals of approx. 2%. Adjust the waveform so that the specified value is satisfied as much as possible.
- (MO read power traverse adjustment)



specification: A=B

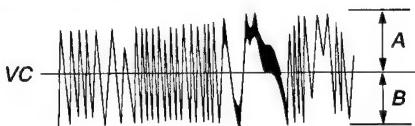
- Press the **[■]** (CD) button, and save the result of adjustment to the non-volatile memory. ("EFB= SAVE" will be displayed for a moment. Then "EFB= MO-W" will be displayed.)

- Turn the VOLUME knob so that the waveforms of the oscilloscope becomes the specified value. (When the VOLUME knob is turned, the " " of "EFB= MO-W" changes and the waveform changes.)

In this adjustment, waveform varies at intervals of approx. 2%. Adjust the waveform so that the specified value is satisfied as much as possible.

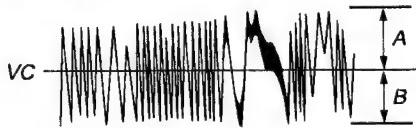
(MO write power traverse adjustment)

(Traverse Waveform)



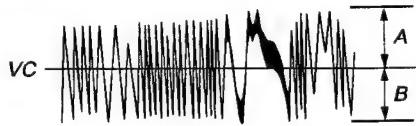
specification: A=B

- Press the **[■]** (CD) button, and save the result of adjustment to the non-volatile memory. ("EFB= SAVE" will be displayed for a moment. Then "EFB= MO-P" will be displayed.)
  - The optical pick-up moves to the pit area automatically and servo is imposed.
  - Turn the VOLUME knob until the waveforms of the oscilloscope moves closer to the specified value.
- In this adjustment, waveform varies at intervals of approx. 2%. Adjust the waveform so that the specified value is satisfied as much as possible.
- (Traverse Waveform)



specification: A=B

- Press the **[■]** (CD) button, and save the result of adjustment to the non-volatile memory. ("EFB= SAVE" will be displayed for a moment. Then "EFBAL ADJUST" will be displayed.)
  - The disc stops rotating automatically.
  - Turn the VOLUME knob and display "EF CD ADJUST".
  - Press the **[△]** (MD) button and remove the MO disc.
  - Load the test disc TDYS-1.
  - Press the **[■]** (CD) button and display "EFB= CD". Servo is imposed automatically.
  - Turn the VOLUME knob until the waveforms of the oscilloscope moves closer to the specified value.
- In this adjustment, waveform varies at intervals of approx. 2%. Adjust the waveform so that the specified value is satisfied as much as possible.
- (Traverse Waveform)



specification: A=B

- Press the **[■]** (CD) button, and save the result of adjustment to the non-volatile memory. ("EFB= SAVE" will be displayed for a moment. Then "EFBAL CD" will be displayed.)
- Press the **[△]** (MD) button and remove the test disc TDYS-1.

## 5-8. FOCUS BIAS ADJUSTMENT

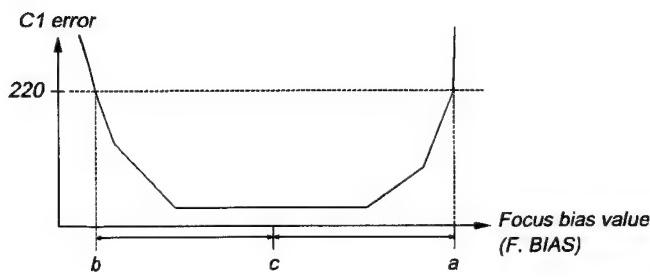
### Adjusting Method:

1. Load a continuously recorded disc (Refer to "5-4. Creating MO Continuously Recorded Disc").
2. Turn the VOLUME knob and display "CPLAY MODE".
3. Press the [CD] button and display "CPLAY MID".
4. Press the [POWER] button when "C1= AD=" is displayed.
5. Turn the VOLUME knob and display "FBIAS ADJUST".
6. Press the [CD] button and display " / a=". The first four digits indicate the C1 error rate, the two digits after [/] indicate ADER, and the 2 digits after [a=] indicate the focus bias value.
7. Turn the VOLUME knob in the clockwise direction and find the focus bias value at which the C1 error rate becomes 220. (Refer to note 2.)
8. Press the [CD] button and display " / b=". Turn the VOLUME knob in the counterclockwise direction and find the focus bias value at which the C1 error rate becomes 220. (Refer to note 2.)
9. Press the [CD] button and display " / c=". Check that the C1 error rate is below 50 and ADER is 00. Then press the [CD] button.

10. If the "( )" in " - - ( )" is above 20, press the [CD] button. If below 20, press the [CD] button and repeat the adjustment from step 2 again.
11. Press the [POWER] button and press the [MD] button to remove the continuously recorded disc.

**Note 1:** The relation between the C1 error and focus bias is as shown in the following figure. Find points a and b in the following figure using the above adjustment. The focal point position c is automatically calculated from points a and b.

**Note 2:** As the C1 error rate changes, perform the adjustment using the average value.



## 5-9. ERROR RATE CHECK

### 5-9-1. CD Error Rate Check

#### Checking Method:

1. Load a test disc TDYS-1.
2. Turn the VOLUME knob and display "CPLAY MODE".
3. Press the [CD] button and display "CPLAY MID".
4. "C1= AD=" is displayed.
5. Check that the C1 error is below 20.
6. Press the [CD] button, stop playback, press the [MD] EJECT button, and remove the test disc.

### 5-9-2. MO Error Rate Check

#### Checking Method:

1. Load a continuously recorded disc (Refer to "5-4. Creating MO Continuously Recorded Disc").
2. Turn the VOLUME knob and display "CPLAY MODE".
3. Press the [CD] button and display "CPLAY MID".
4. "C1= AD=" is displayed.
5. If the C1 error is below 50, check that ADER is 00.
6. Press the [CD] button, stop playback, press the [MD] button, and remove the continuously recorded disc.

## 5-10. FOCUS BIAS CHECK

Change the focus bias and check the focus tolerance amount.

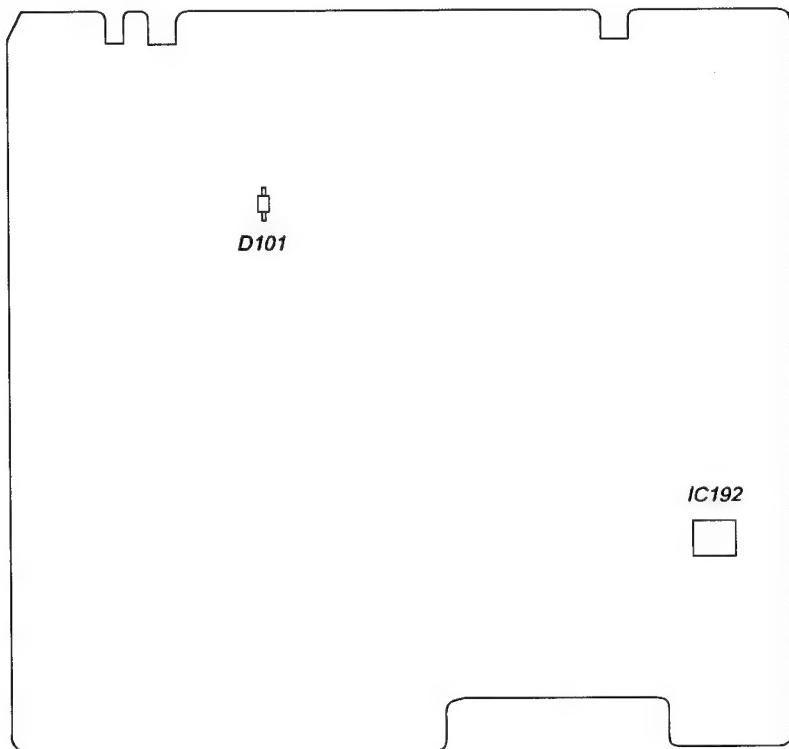
#### Checking Method:

1. Load a continuously recorded disc (Refer to "5-4. Creating MO Continuously Recorded Disc").
2. Turn the VOLUME knob and display "CPLAY MODE".
3. Press the [CD] button and display "CPLAY MID".
4. Press the [POWER] button when "C1= AD=" is displayed.
5. Turn the VOLUME knob and display "FBIAS CHECK".
6. Press the [CD] button and display " / c=". The first four digits indicate the C1 error rate, the two digits after [/] indicate ADER, and the 2 digits after [c=] indicate the focus bias value.
7. Check that the C1 error is below 50 and ADER is 00.
8. Press the [CD] button and display " / b=". Check that the C1 error is not below 220 and ADER is not above 00 every time.
9. Press the [CD] button and display " / a=". Check that the C1 error is not below 220 and ADER is not above 00 every time.
10. Press the [POWER] button, next press the [MD] button, and remove the continuously recorded disc.

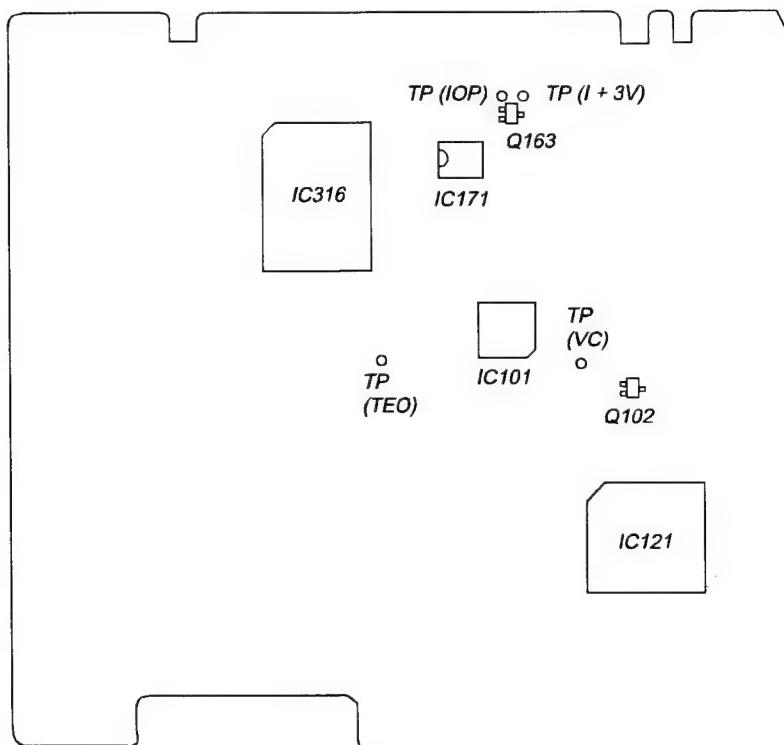
**Note 1:** If the C1 error and ADER are above 00 at points a or b, the focus bias adjustment may not have been carried out properly. Adjust and repeat the beginning again.

## 5-1. ADJUSTING POINTS AND CONNECTING POINTS

[BD BOARD] (SIDE A)



[BD BOARD] (SIDE B)



## CD SECTION

### Notes:

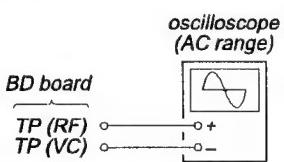
1. CD Block basically constructed to operated without adjustment. Therefore, check each item in order given.
2. Use YEDS-18 disc (Part No.: 3-702-101-01) unless otherwise indicated.
3. Use the oscilloscope with more than  $10 \text{ M}\Omega$  impedance.
4. Clean an object lens by an applicator with neutral detergent when the signal level is low than specified value with the following checks.
5. Adjust the focus bias adjustment when optical pick-up is replaced.

### Focus Bias Adjustment

This adjustment is to be done when the optical pick-up is replaced.

**Condition:** This adjustment is performed with the set placed horizontally.

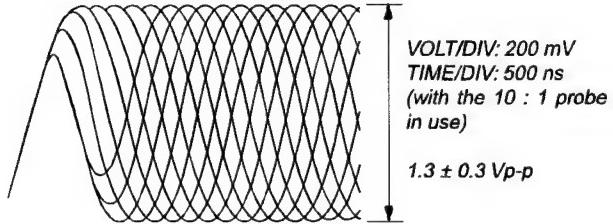
### Connection:



### Adjustment Procedure:

1. Connect the oscilloscope to TP (RF) and TP (VC) on BD board.
2. Turned power switch on. (stop mode)
3. Put disc (YEDS-18) in and press the **►II** button.
4. Adjust RV101 so that the oscilloscope waveform is as shown in the figure below (eye pattern). A good eye pattern means that the diamond shape ( $\diamond$ ) in the center of the waveform can be clearly distinguished.
5. After adjustment, check the RF signal level.

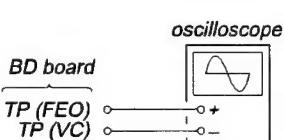
### • RF signal reference waveform (eye pattern)



When observing the eye pattern, set the oscilloscope for AC range and raise vertical sensitivity.

### S-Curve Check

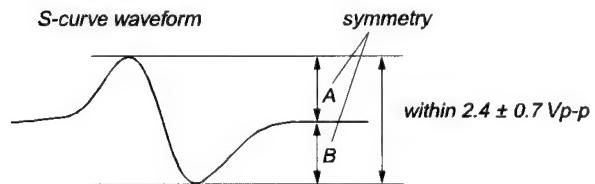
#### Connection:



#### Procedure:

1. Connect the oscilloscope to TP (FEO) and TP (VC) on BD board.
2. Connect the TP (FOK) and TP (GND) with lead wire.
3. Turned power switch on.
4. Put disc (YEDS-18) in and turned power switch on again and actuate the focus search. (actuate the focus search when disc table is moving in and out.)

5. Confirm that the oscilloscope waveform (S-curve) is symmetrical between A and B. And confirm peak to peak level within  $2.4 \pm 0.7 \text{ Vp-p}$ .



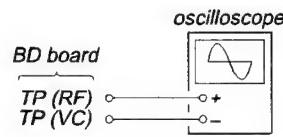
6. After check, remove the lead wire connected in step 2.

**Note:**

- Try to measure several times to make sure that the ratio of A : B or B : A is more than 10 : 7.
- Take sweep time as long as possible and light up the brightness to obtain best waveform.

### RF Level Check

#### Connection:

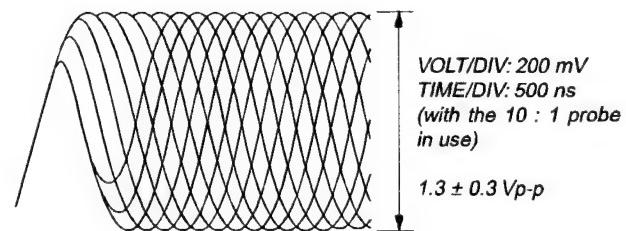


#### Procedure:

1. Connect the oscilloscope to TP (RF) and TP (VC) on BD board.
2. Turned power switch on. (stop mode)
3. Put disc (YEDS-18) in and press the **►II** button.
4. Confirm that oscilloscope waveform is clear and check RF signal level is correct or not.

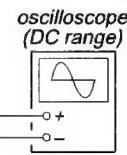
**Note:** Clear RF signal waveform means that the shape “ $\diamond$ ” can be clearly distinguished at the center of the waveform.

#### RF signal waveform



### E-F Balance (Traverse) Check

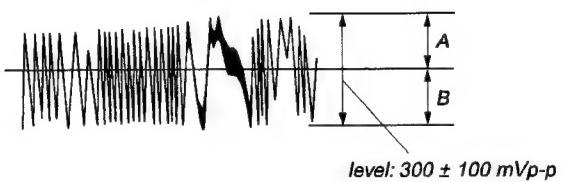
#### Connection:



#### Procedure:

1. Connect the TP100 (ADJ) and Ground with lead wire. (on the MAIN board)
2. Connect the oscilloscope to TP (TEO) and TP (VC) on BD board.
3. Turned power switch on.
4. Put disc (YEDS-18) in and press the **►II** button.
5. Press the **TIME** button. (Tracking servo and sled servo are turned off.)
6. Confirm that the oscilloscope waveform is symmetrical on the top and bottom in relation to 0 Vdc, and check this level.

*Traverse waveform*



$$\text{specified value: } -\frac{A-B}{2(A+B)} \times 100 = \text{less than} \pm 7\% \\ \cdot A+B = 300 \pm 100 \text{ mVp-p}$$

7. After check, remove the lead wire connected in step 1.

**Focus/Tracking Gain Adjustment (RV102, RV103)**

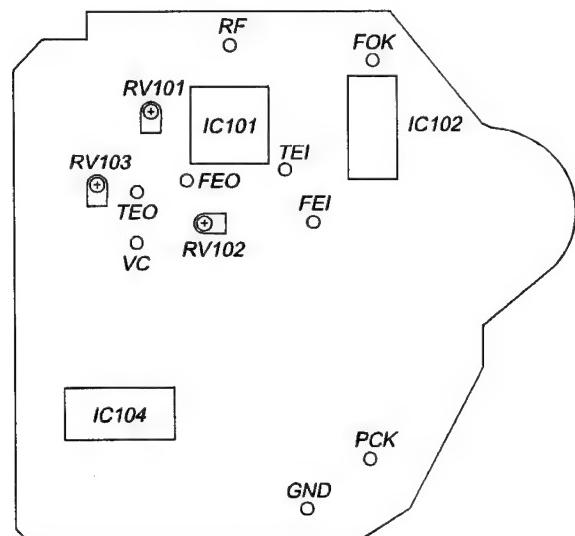
This gain has a margin, so even if it is slightly off. There is no problem.

Therefore, do not perform, this adjustment.

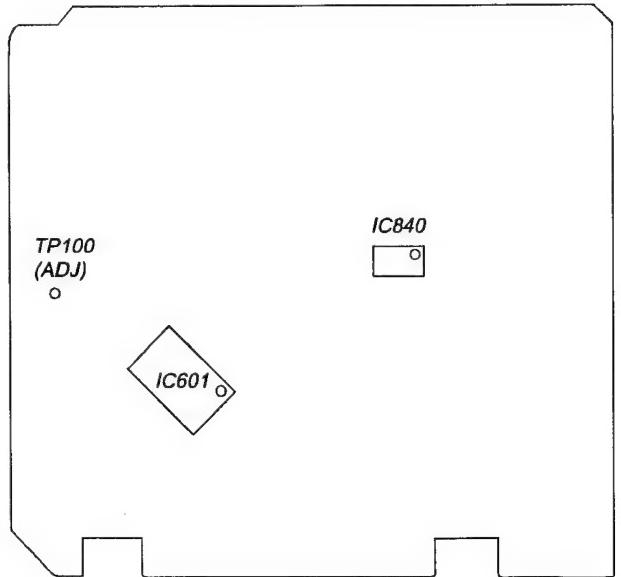
Please note that it should be fixed to mechanical center position when you moved and do not know original position.

**Adjustment Location :**

[BD BOARD] – Side B –

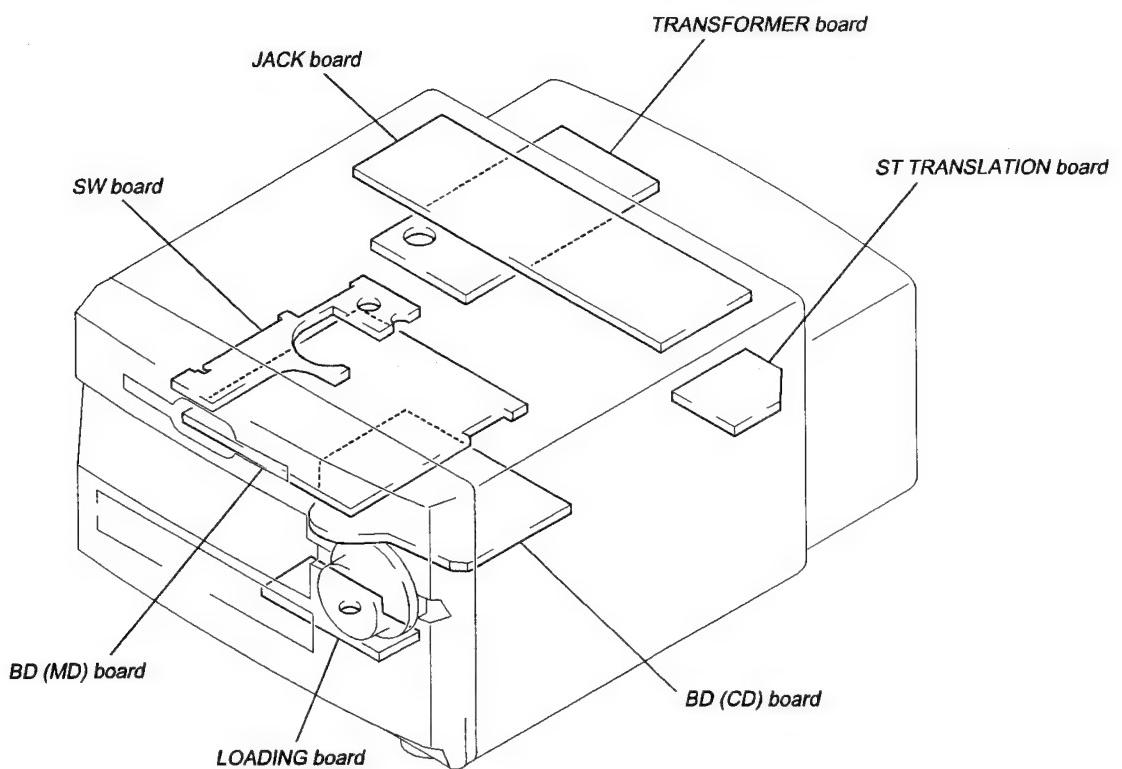
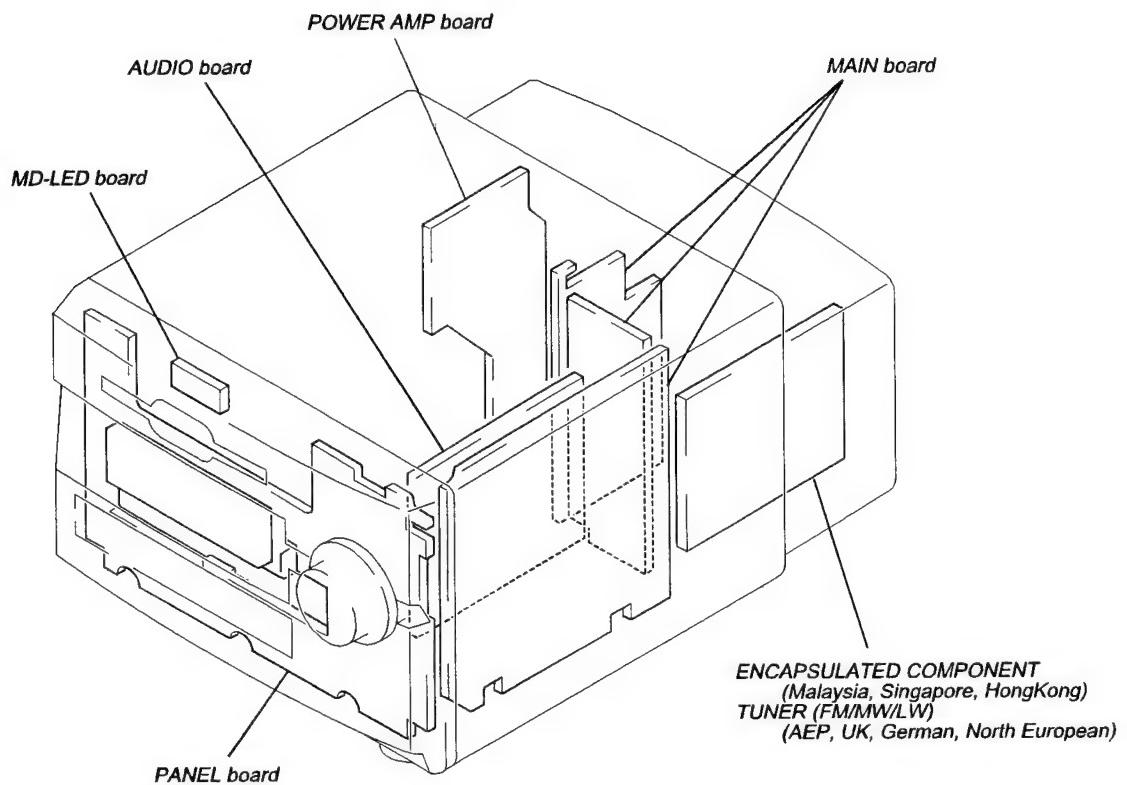


[MAIN BOARD] (1/3) – Conductor Side –

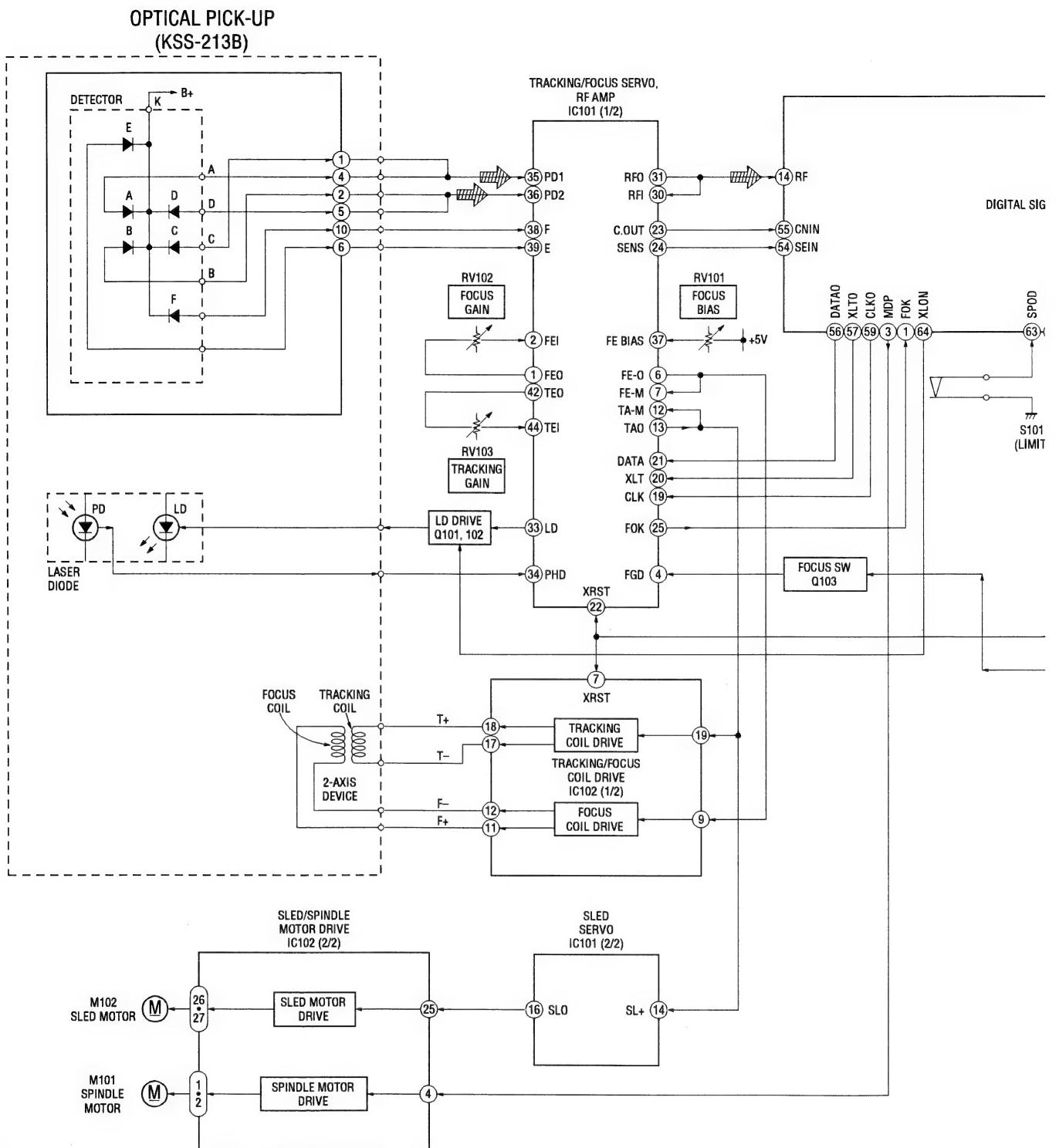


## SECTION 6 DIAGRAMS

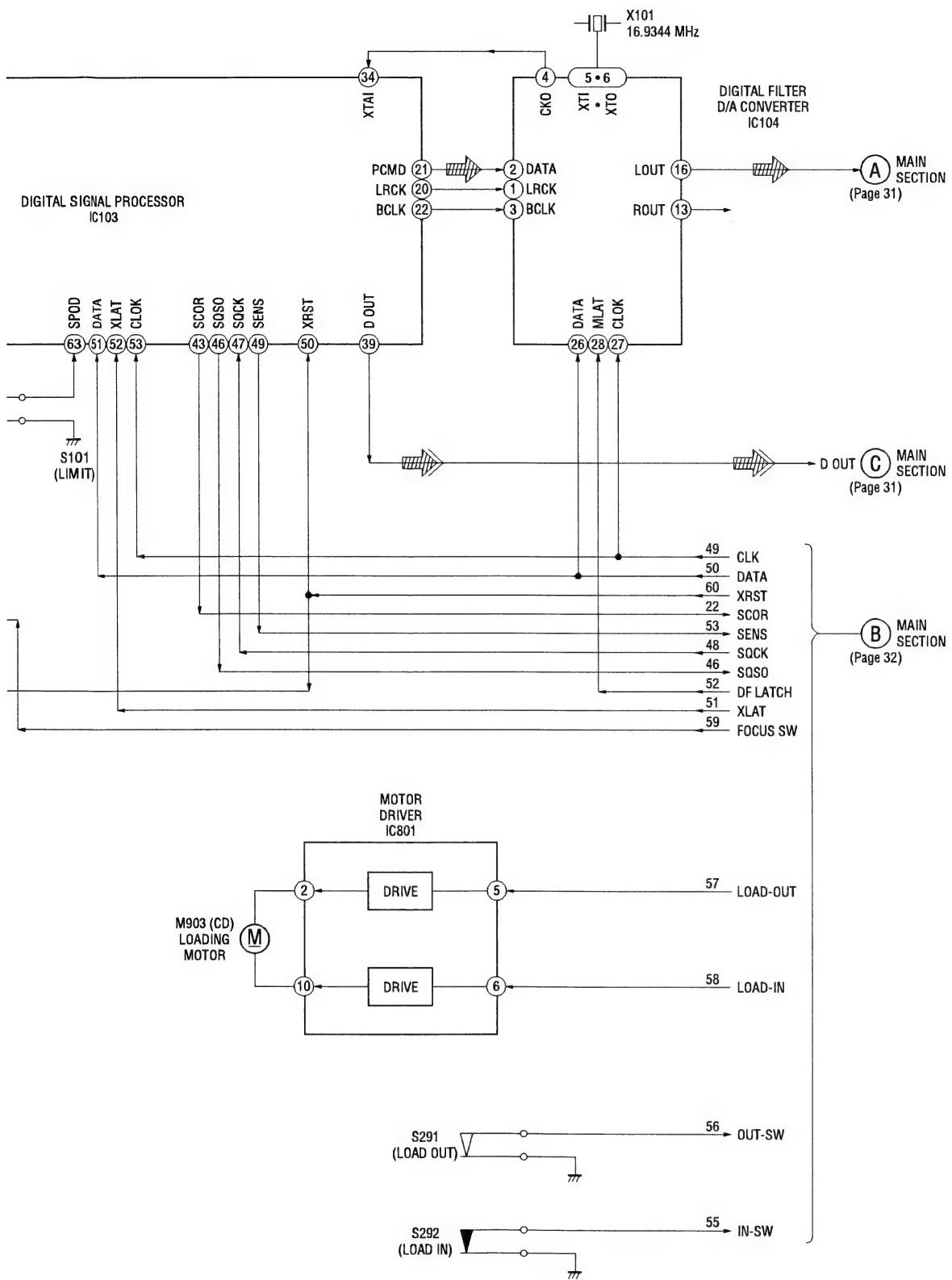
### • Circuit Boards Location



**6-1. BLOCK DIAGRAM**  
**- CD SECTION -**

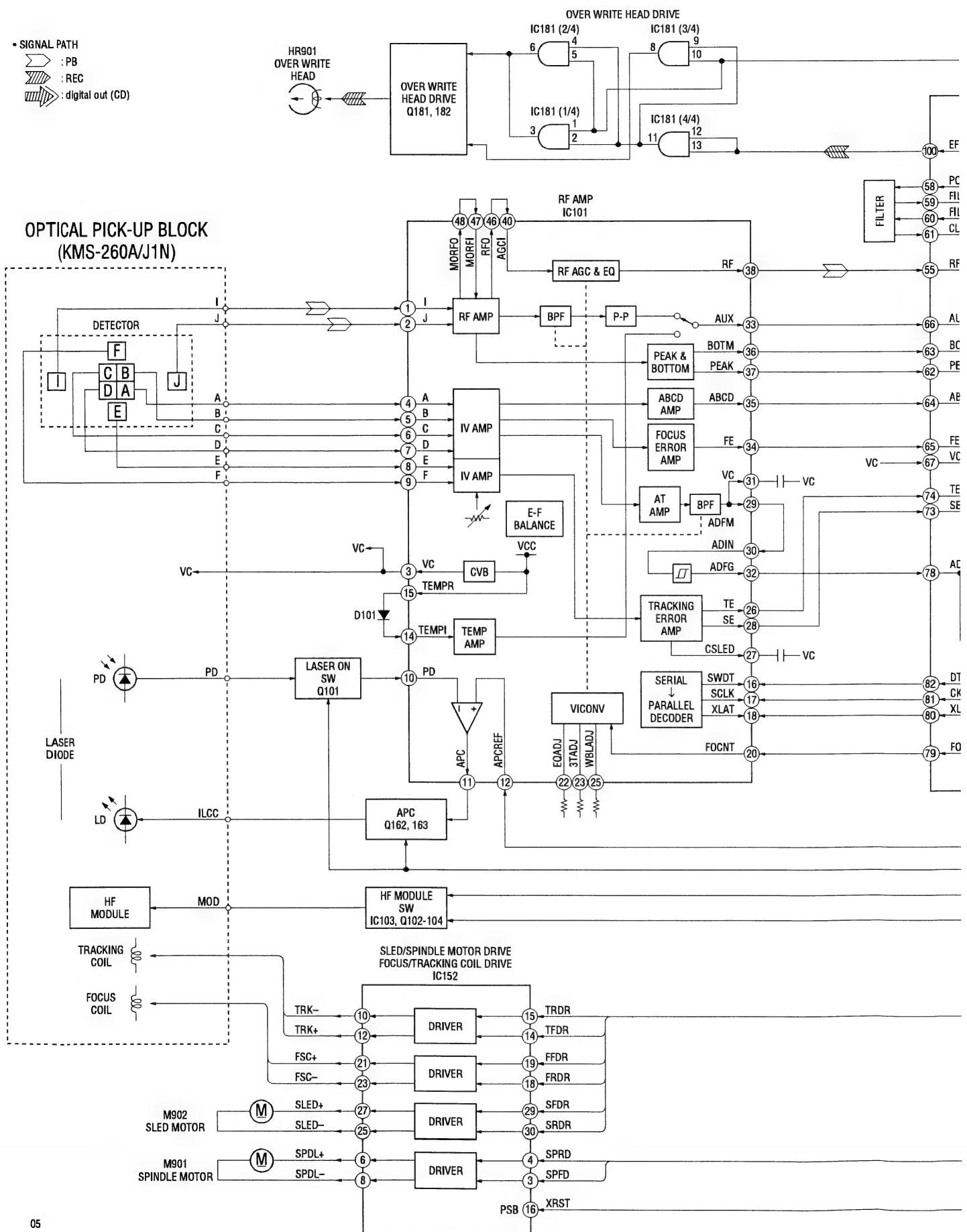


- SIGNAL PATH
  - CD :
  - :digital out (CD) :



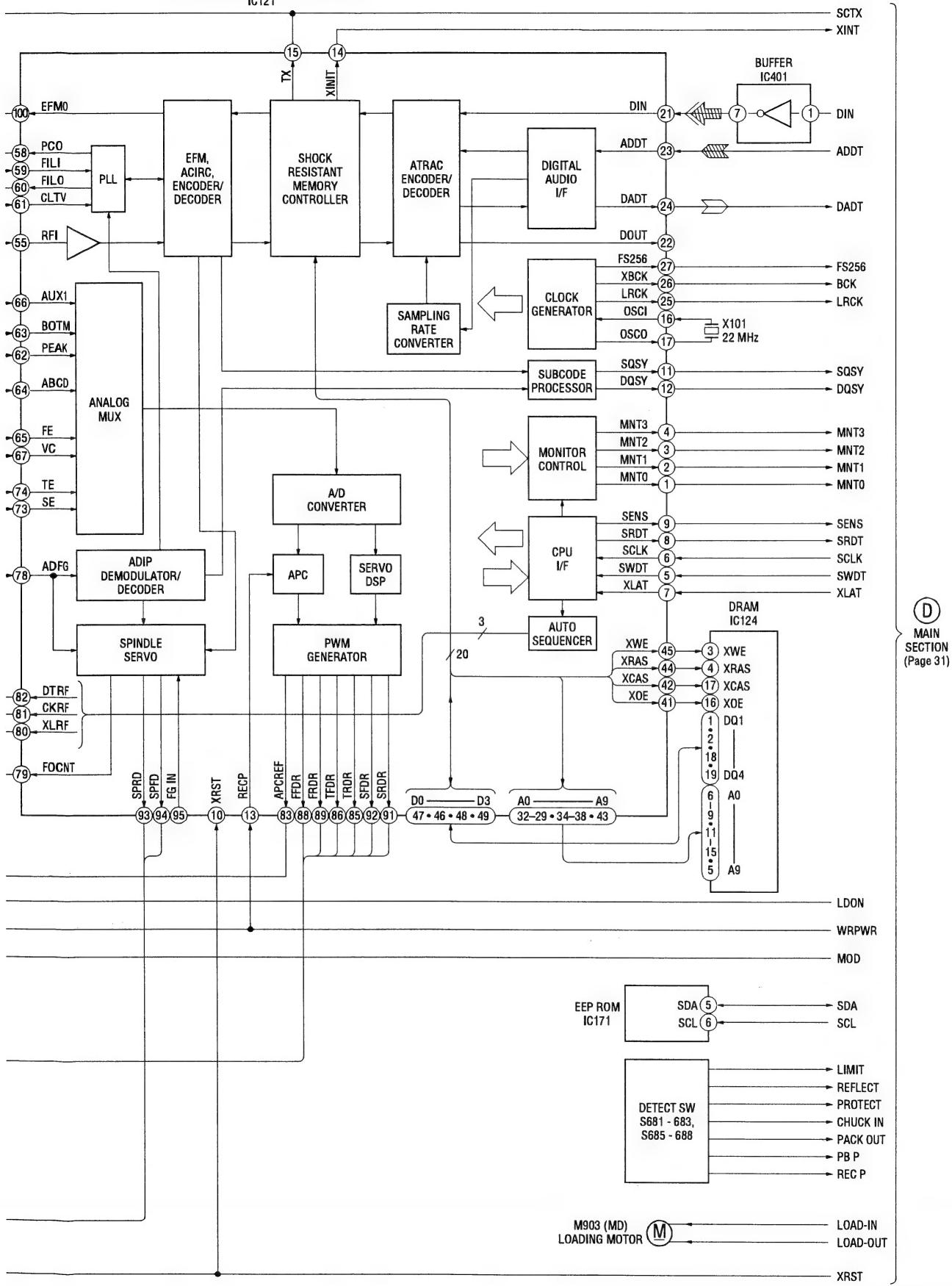
## - MD SECTION -

- SIGNAL PATH
  - : PB
  - ↔ : REC
  - ↔ : digital out (CD)



DIGITAL SERVO SIGNAL PROCESSOR, DIGITAL SIGNAL PROCESSOR  
EFM/ACIRC ENCODER/DECODER, SHOCK-PROOF MEMORY CONTROLLER,  
ATRAC ENCODER/DECODER, 2M-BIT DRAM

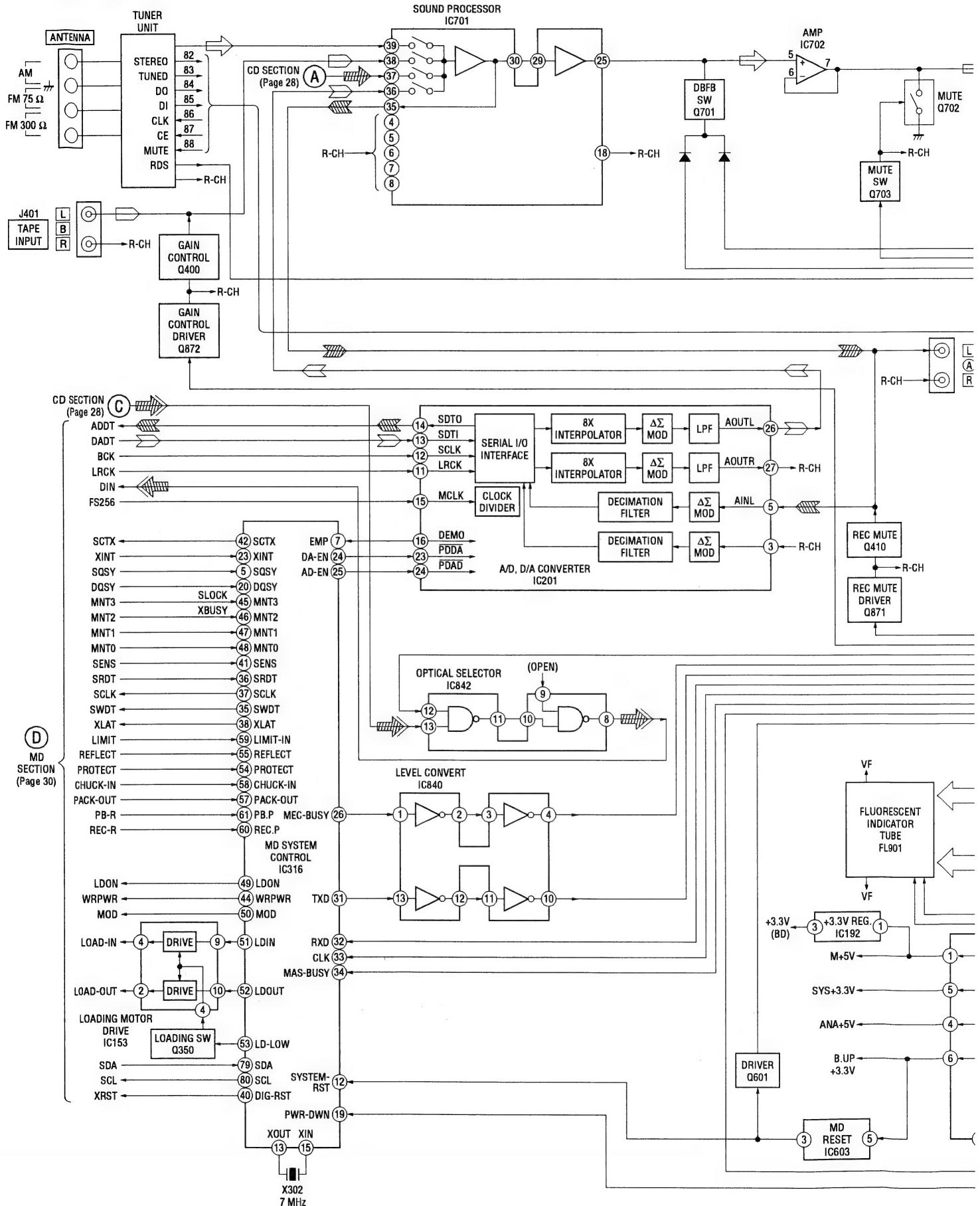
IC121

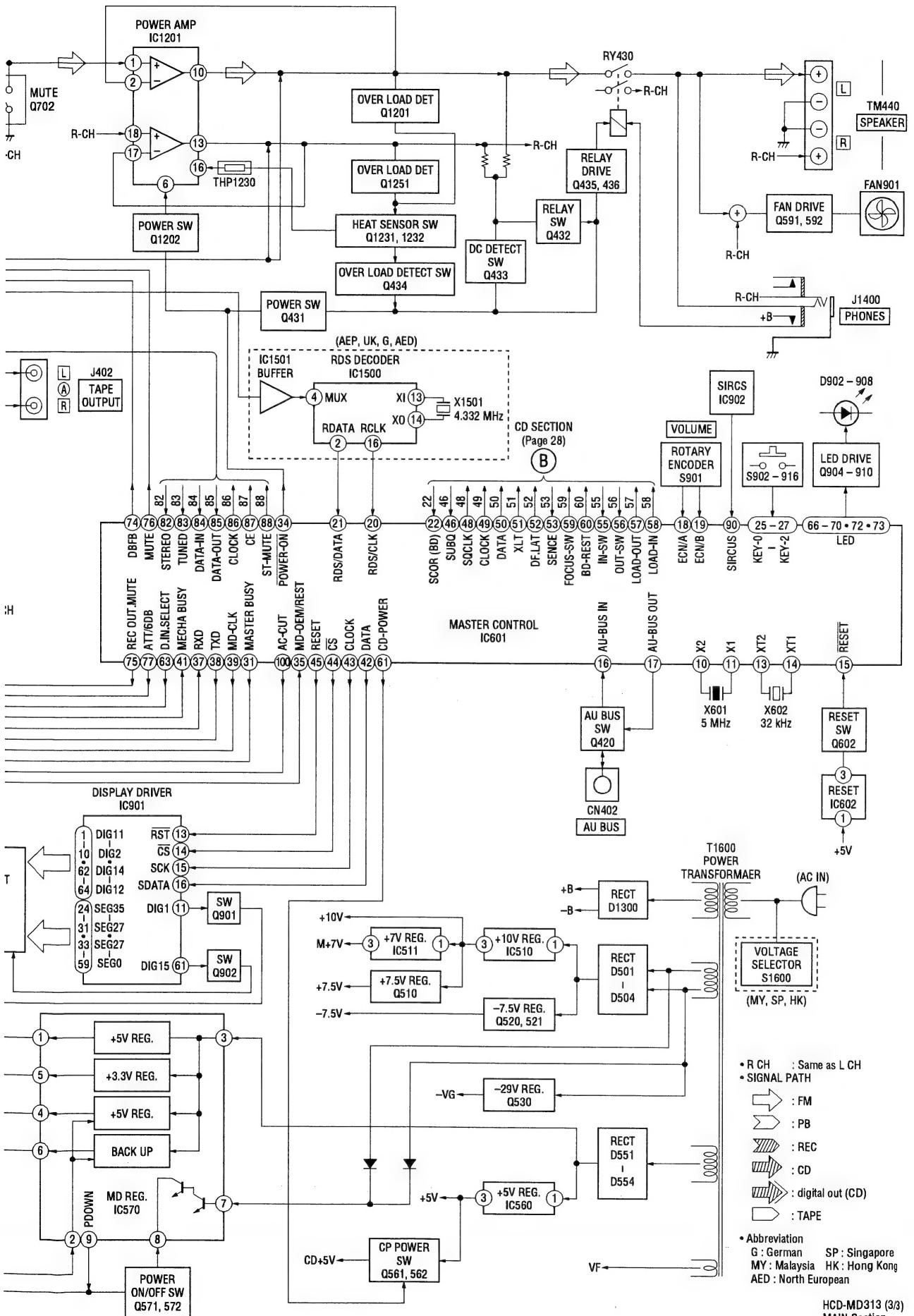


D  
MAIN SECTION  
(Page 31)

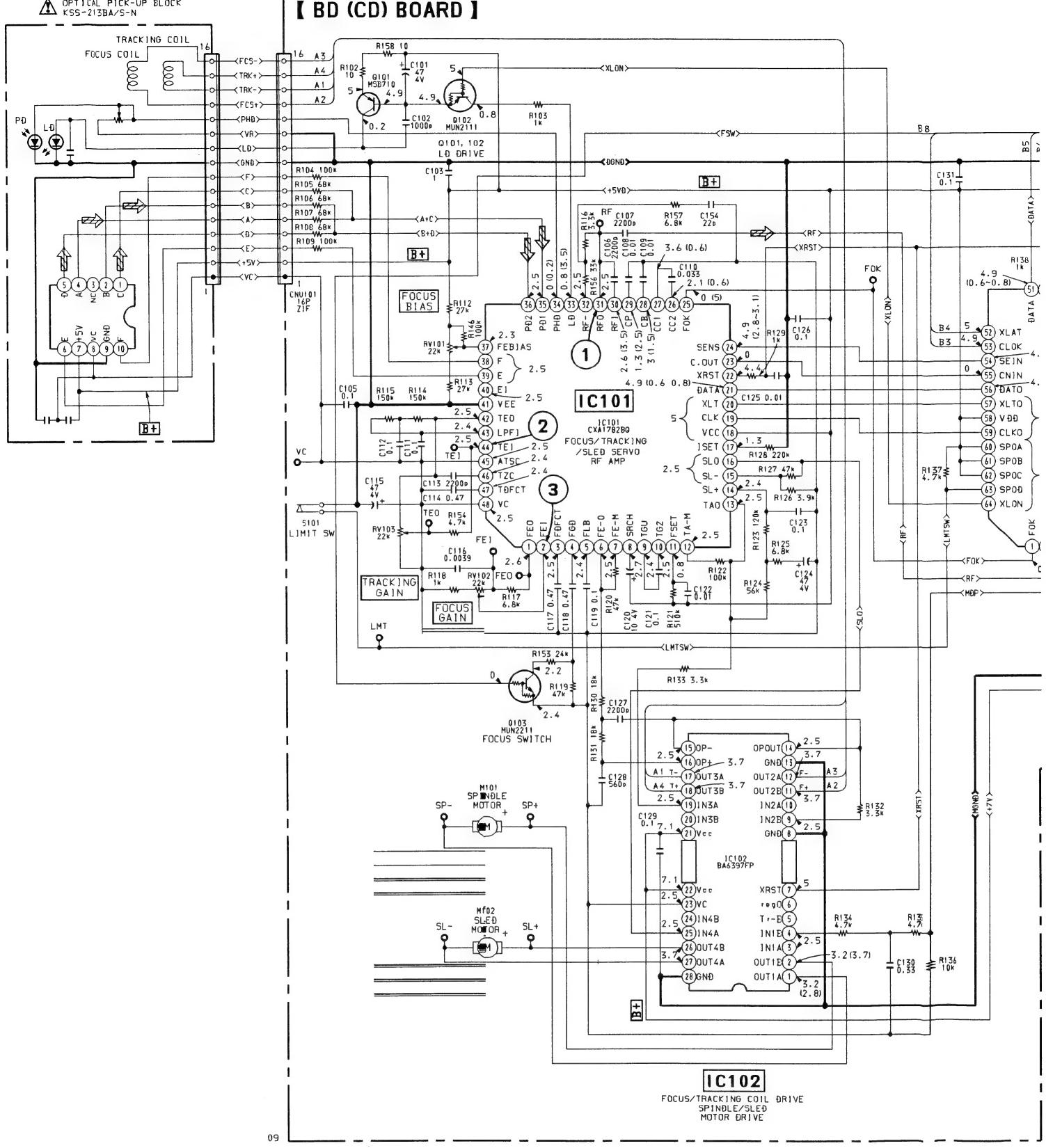
HCD-MD313 (2/3)  
MD Section

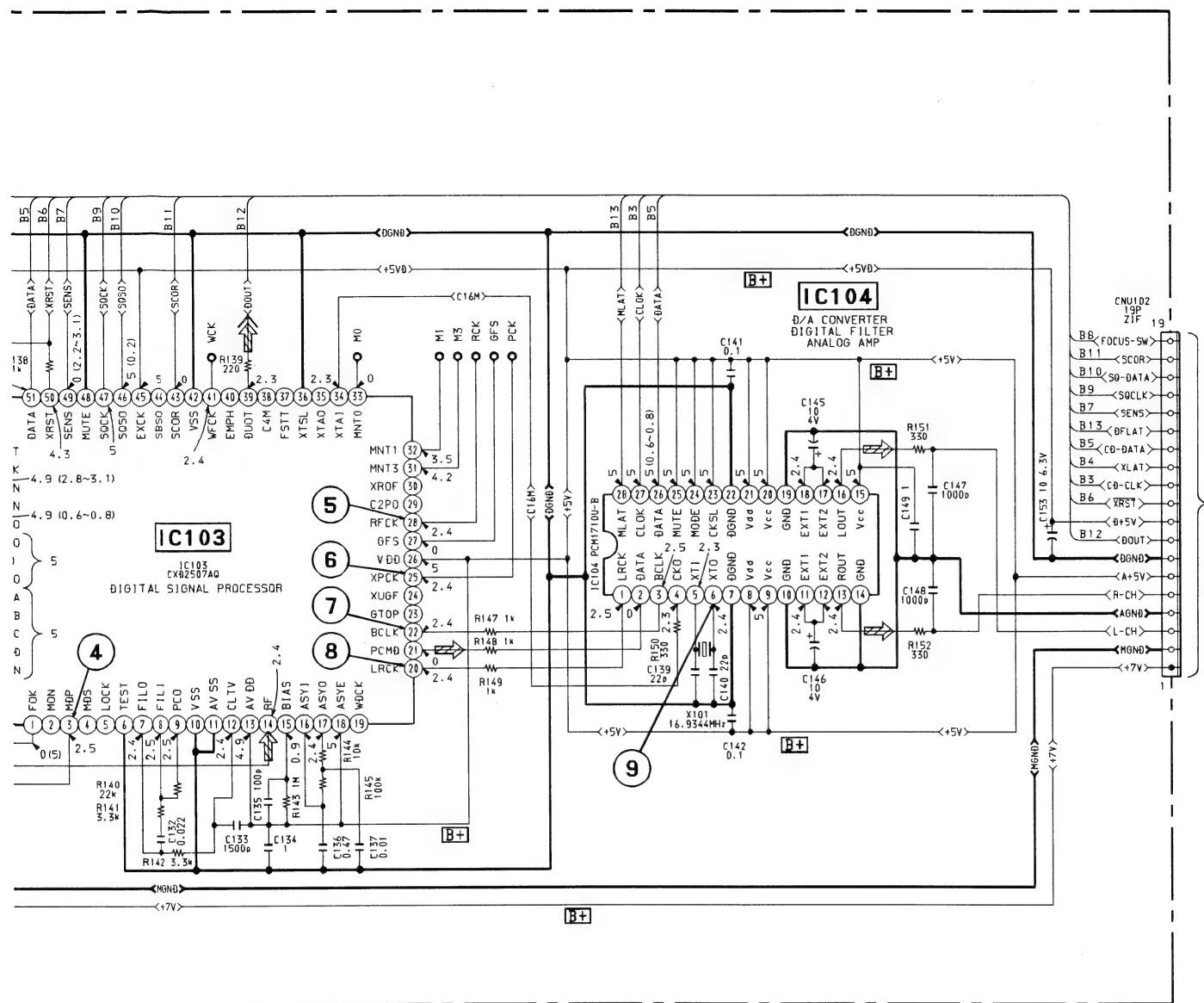
**- MAIN SECTION -**





【 BD (CD) BOARD 】





A

(Page 55)

## **NOTE**

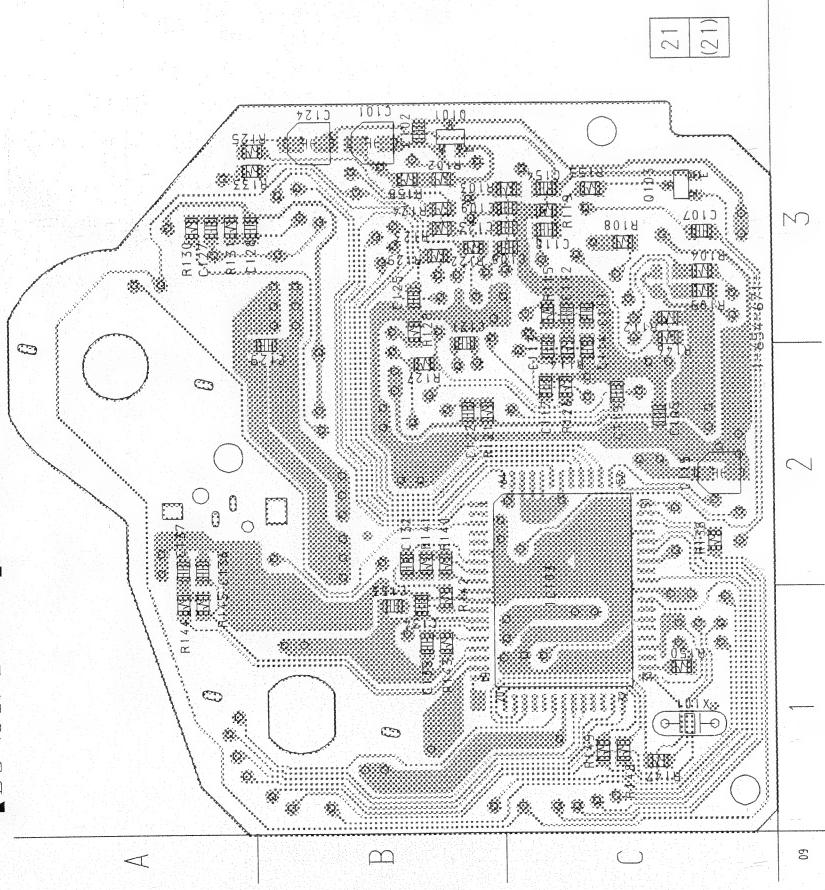
- Voltages and waveforms are dc with respect to ground under no-signal conditions.  
no mark:STOP  
( ) :CB:PLAY  
\* :[im]possible to measure

<p>Note:</p> <p>The components identified by mark  or dotted line with mark  are critical for safety. Replace only with part number specified.</p>	<p>Note:</p> <p>Les composants identifiés par une marque  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.</p>
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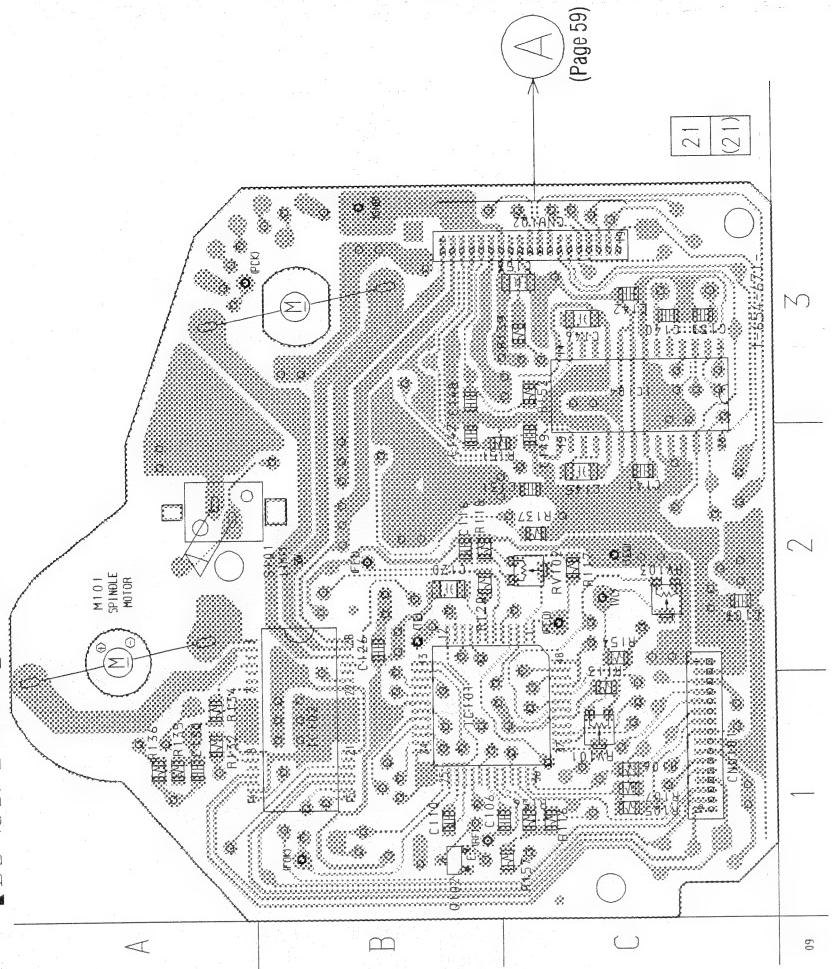
**7-4. PRINTED WIRING BOARD - CD SECTION –**

• See page 31 for Circuit Boards Location.

**【BD (CD) BOARD】 (SIDE A)**



**【BD (CD) BOARD】 (SIDE B)**



A  
(Page 59)

21  
(21)

3  
2  
1  
09

• Semiconductor Location

Ref. No.	Location
IC103	C-1
Q101	B-3
Q103	C-3

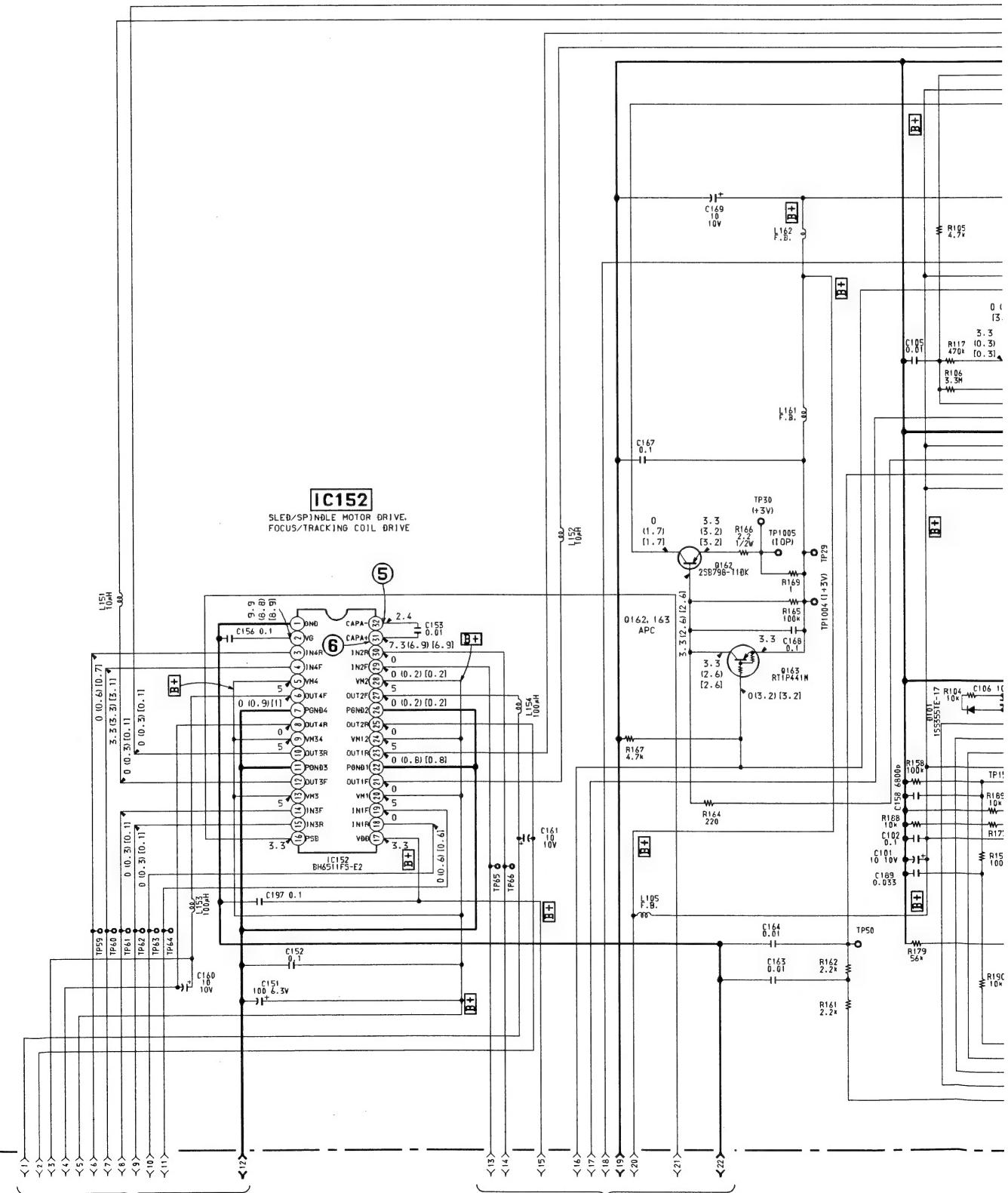
• Semiconductor Location

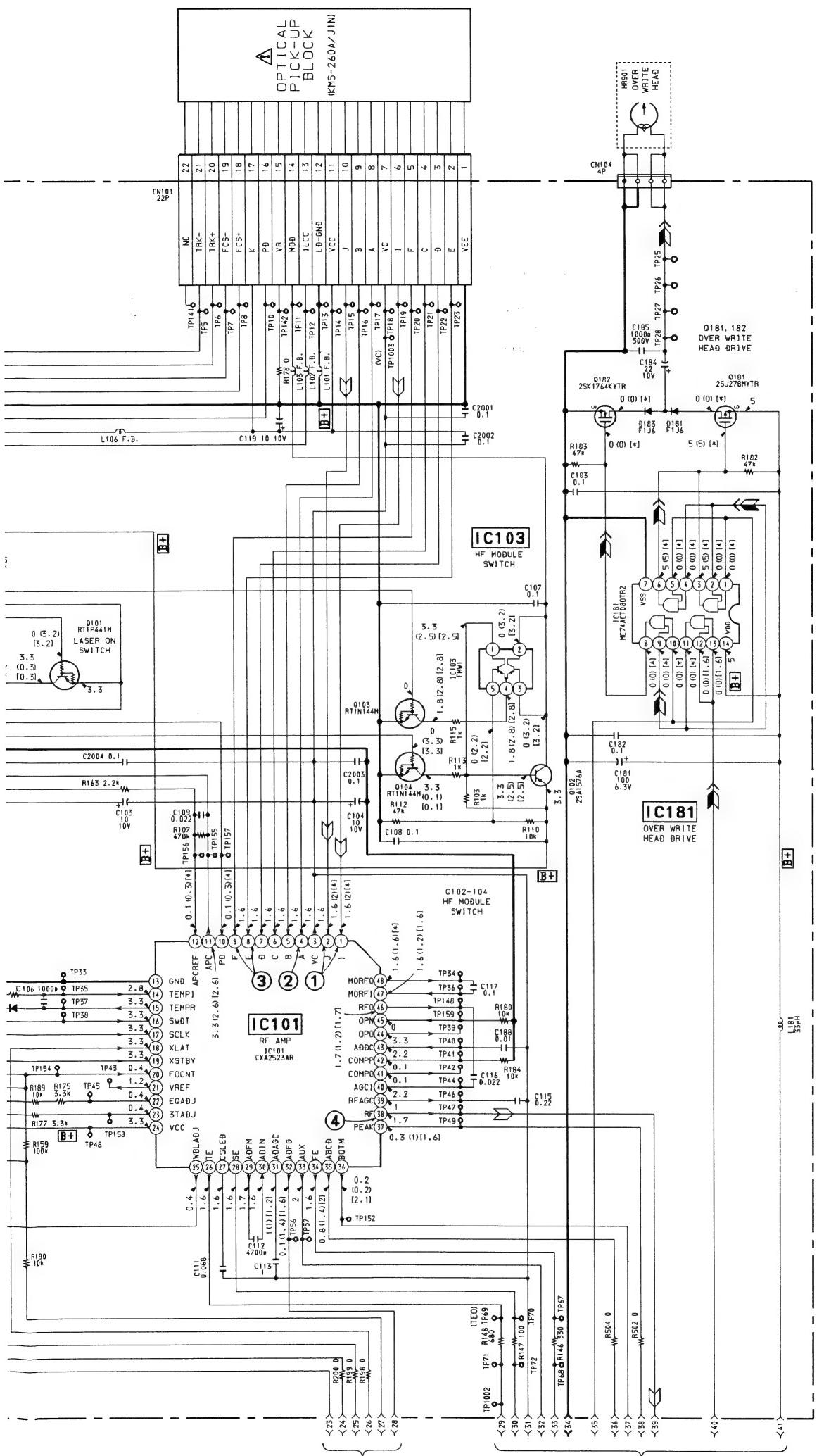
Ref. No.	Location
IC101	B-1
IC102	B-1
IC104	C-3
Q102	B-1

### 【BD (MD) BOARD (1/3)】

#### NOTE

- Voltages and waveforms are dc with respect to ground under no-signal conditions.
- no mark: STOP
- ( ) : MD PLAY
- [ ] : MD REC
- \* : [ ] impossible to measure

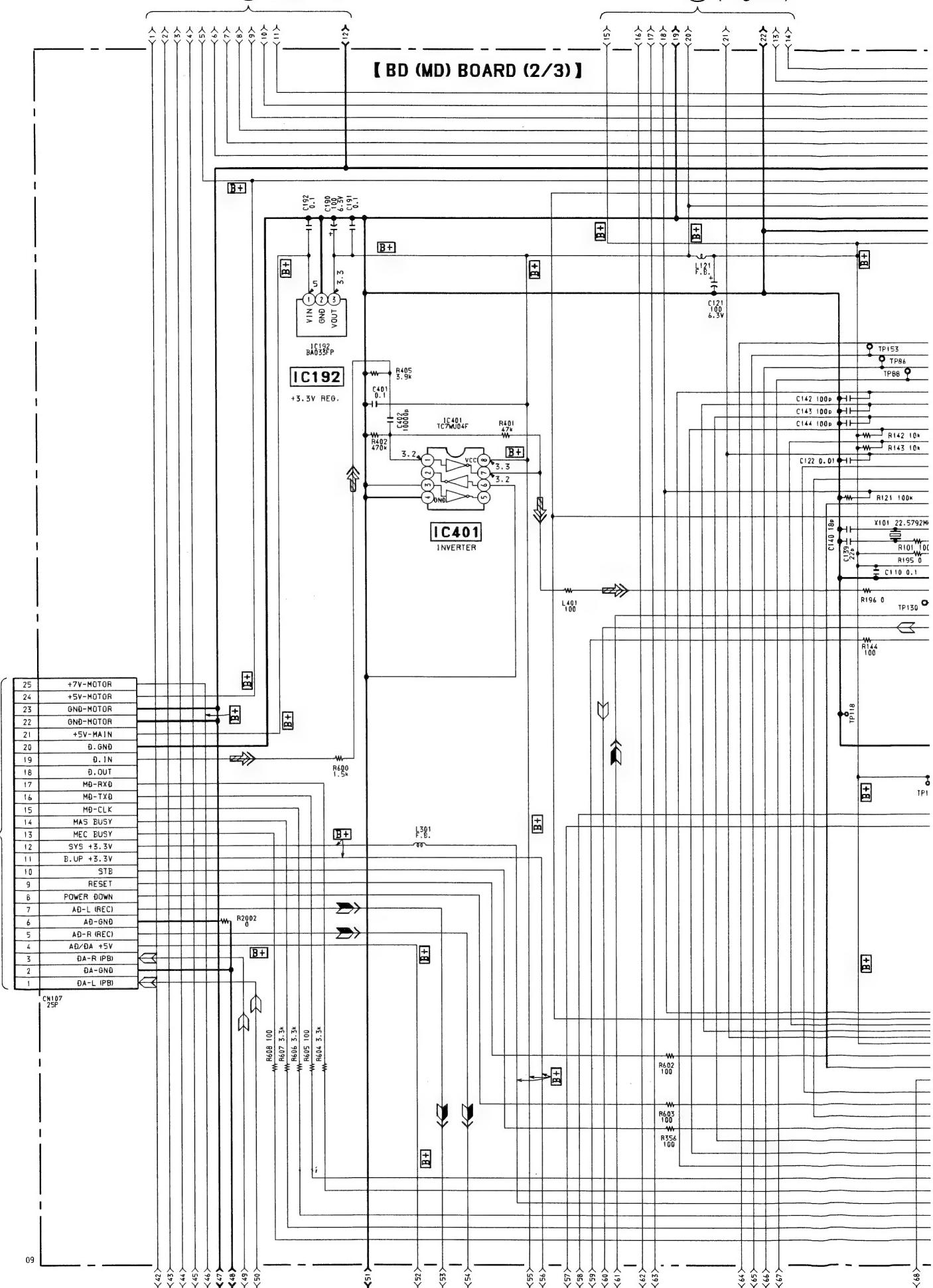




① (Page 45)

② (Page 45)

## 【BD (MD) BOARD (2/3)】

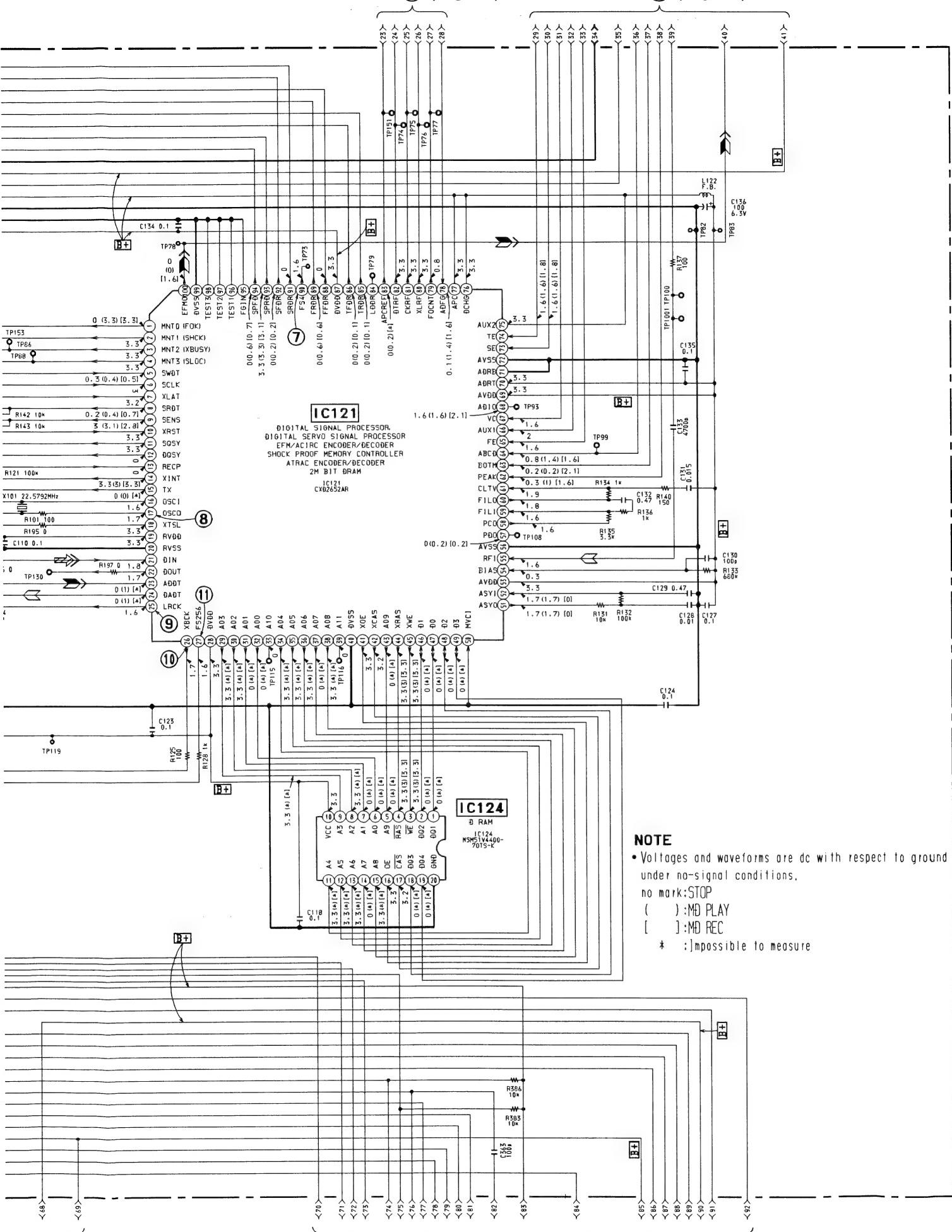


⑤ (Page 49)

⑥ (Page 49)

③ (Page 46)

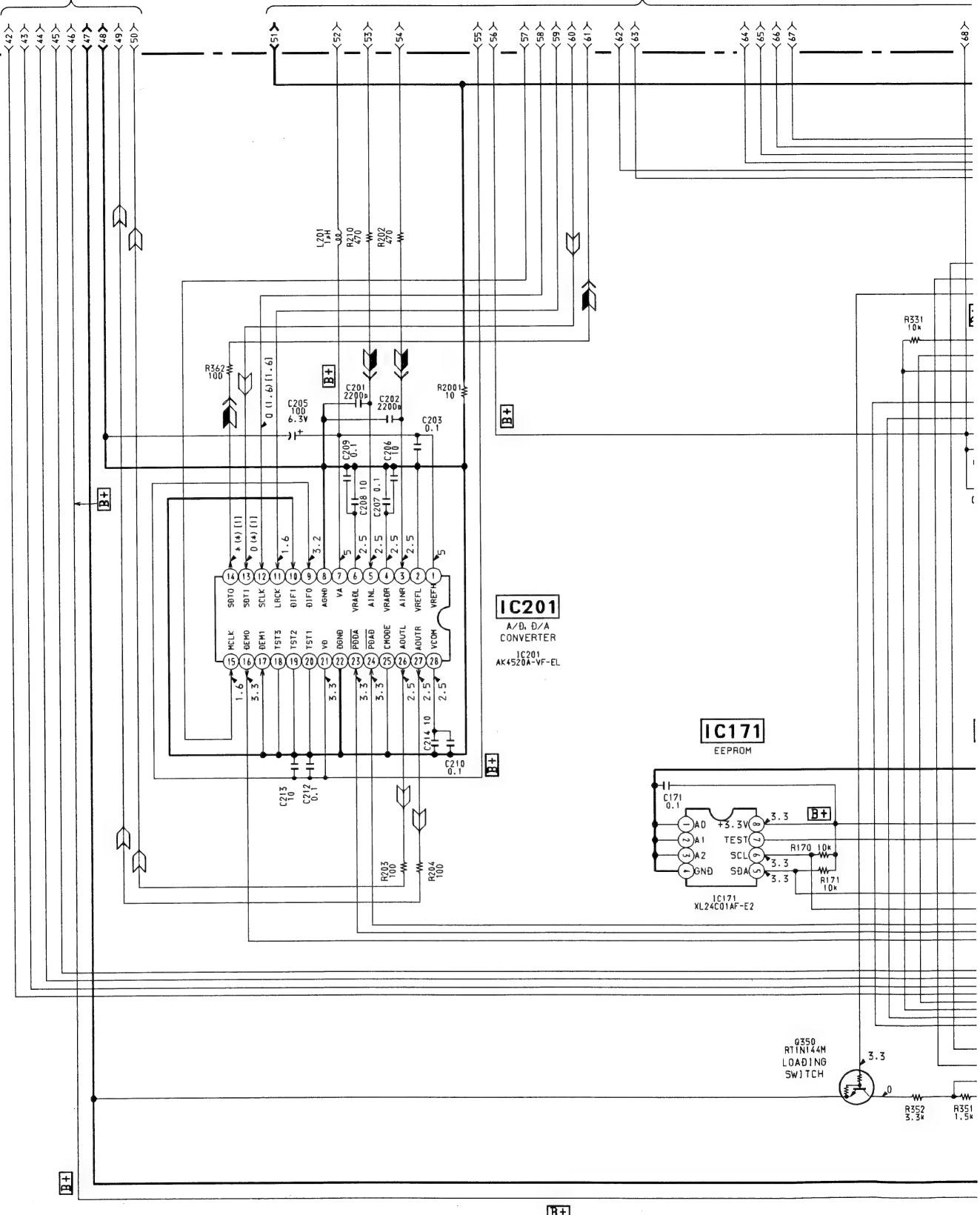
④ (Page 46)

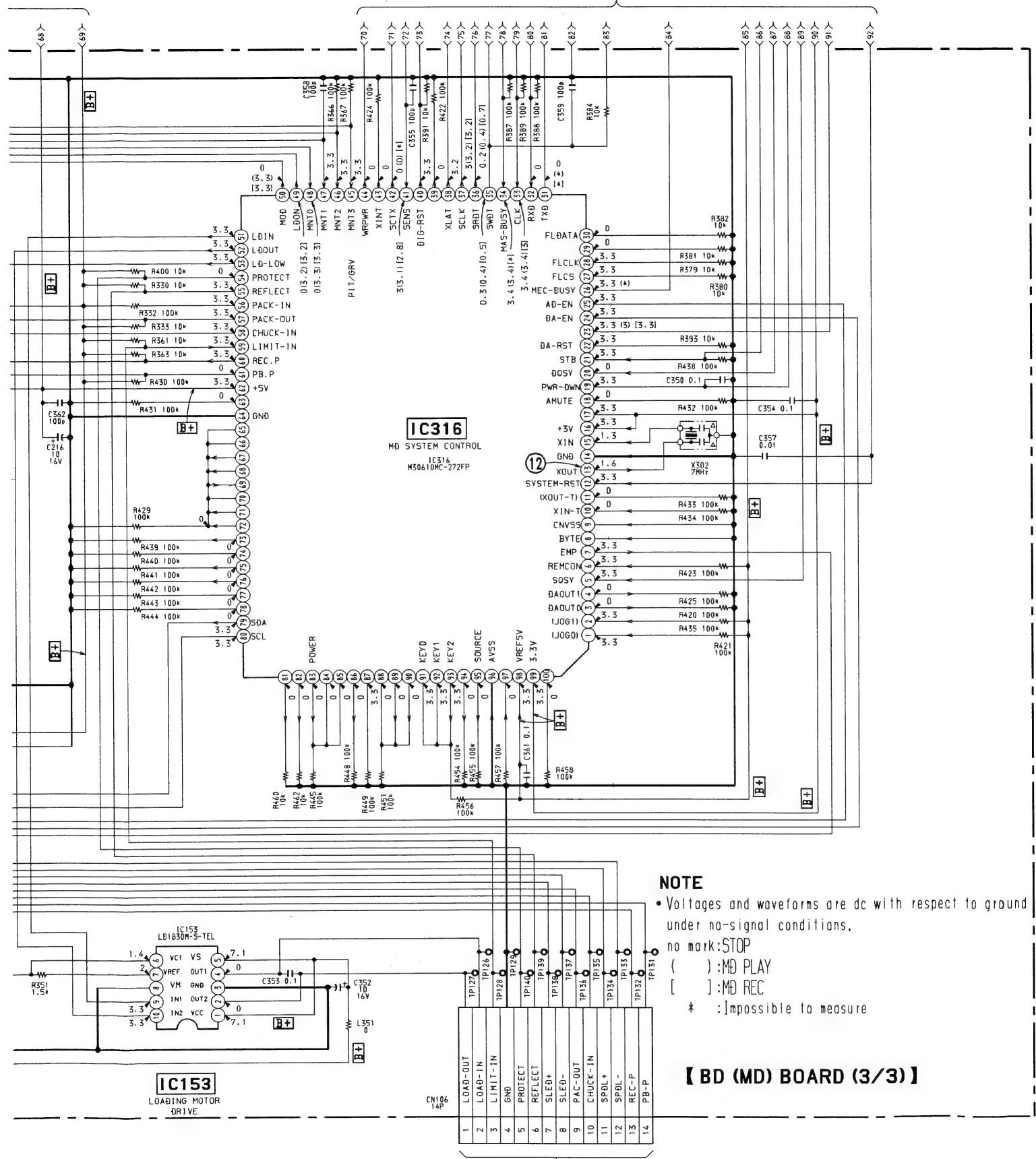


⑦ (Page 50)

(5) (Page 47)

(6) (Page 47)





**NOTE**

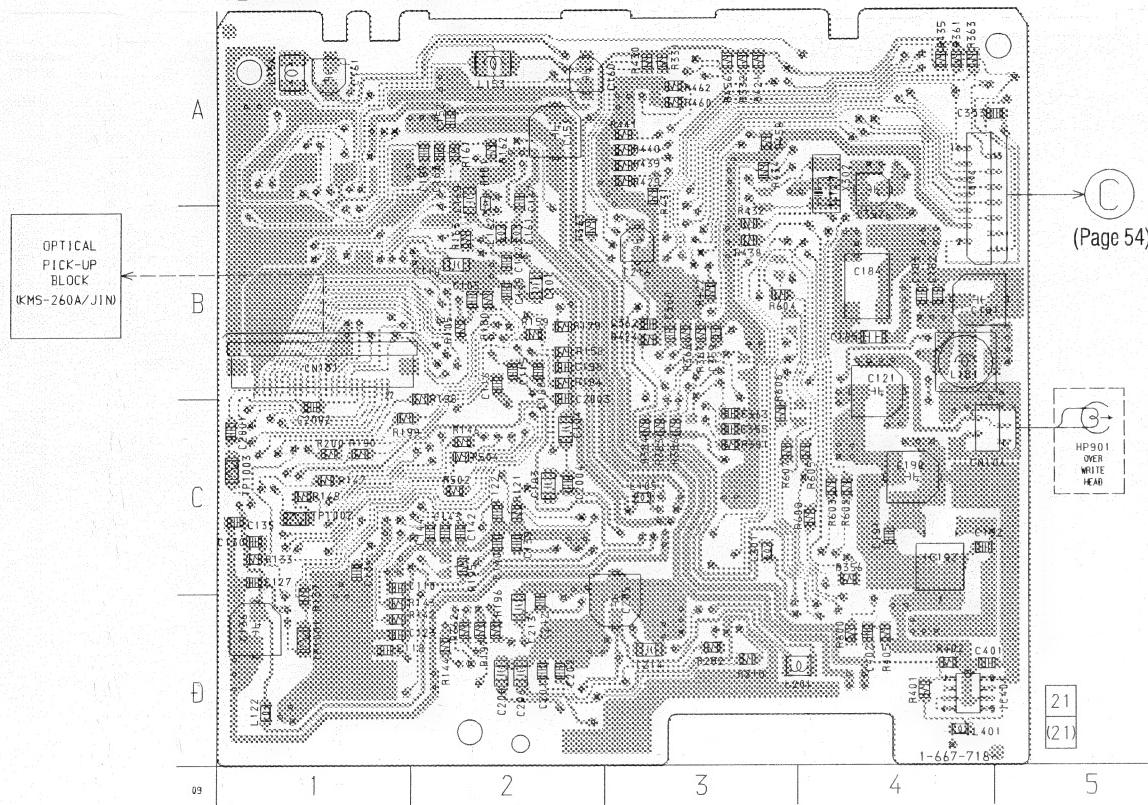
- Voltages and waveforms are dc with respect to ground under no-signal conditions.
  - no mark:STOP
  - ( ) :MD PLAY
  - [ ] :MD REC
  - \* : [im]possible to measure

### 【 BD (MD) BOARD (3/3) 】

**7-8. PRINTED WIRING BOARD – MD SECTION –**

• See page 31 for Circuit Boards Location.

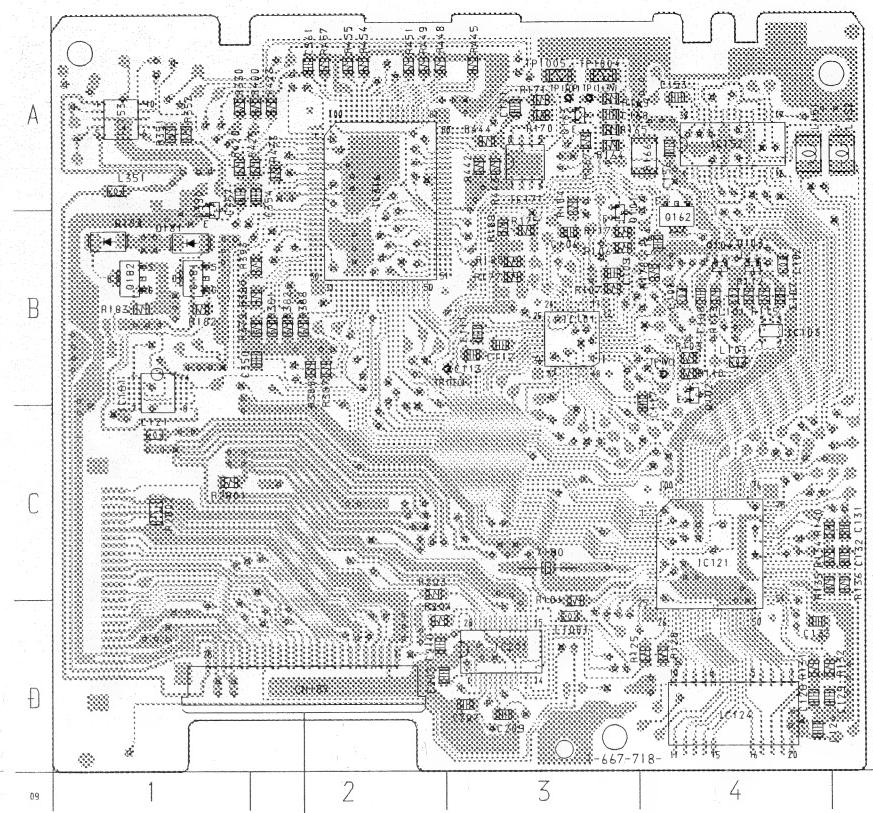
【BD (MD) BOARD】(SIDE A)



• Semiconductor Location

Ref. No.	Location
D101	A-2
IC192	C-4
IC401	D-4

【BD (MD) BOARD】(SIDE B)

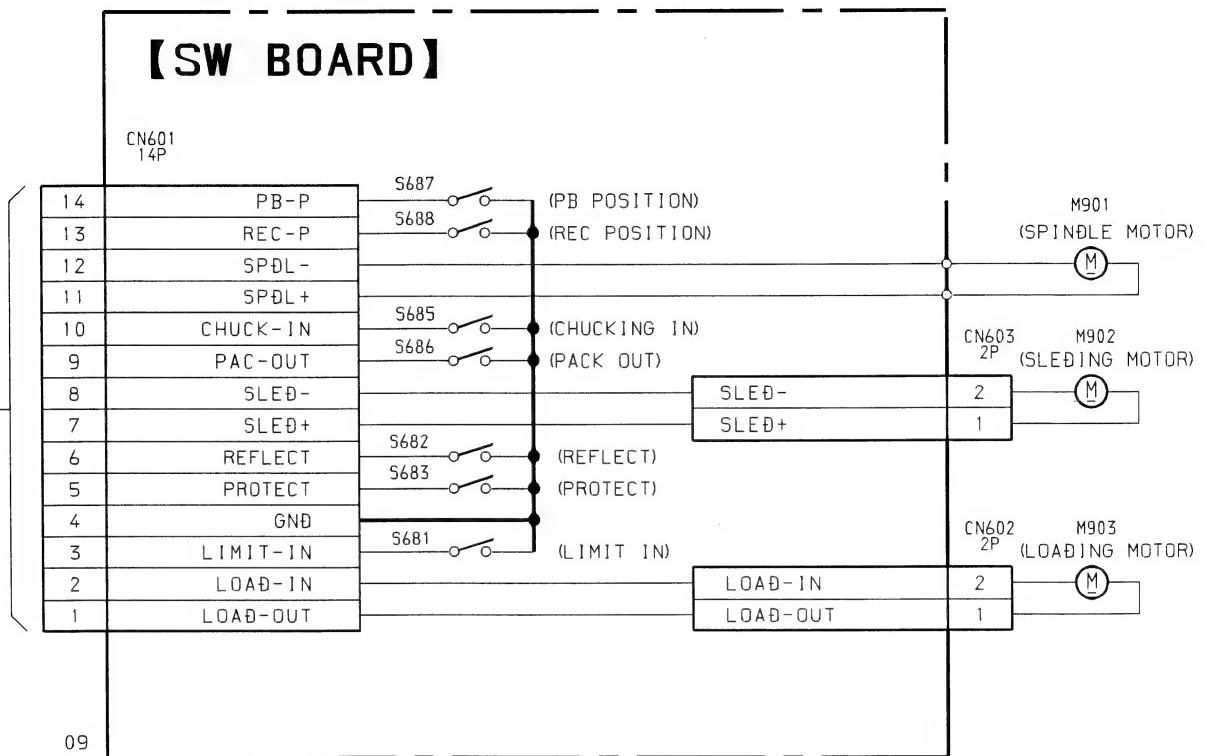


• Semiconductor Location

Ref. No.	Location	Ref. No.	Location
D181	B-1	IC316	A-2
D183	B-1	Q101	B-3
IC101	B-3	Q102	B-4
IC103	B-4	Q103	B-4
IC121	C-4	Q104	B-4
IC124	D-4	Q162	B-4
IC152	A-4	Q163	A-3
IC153	A-1	Q181	B-1
IC171	A-3	Q182	B-1
IC181	B-1	Q350	A-1
IC201	D-3		

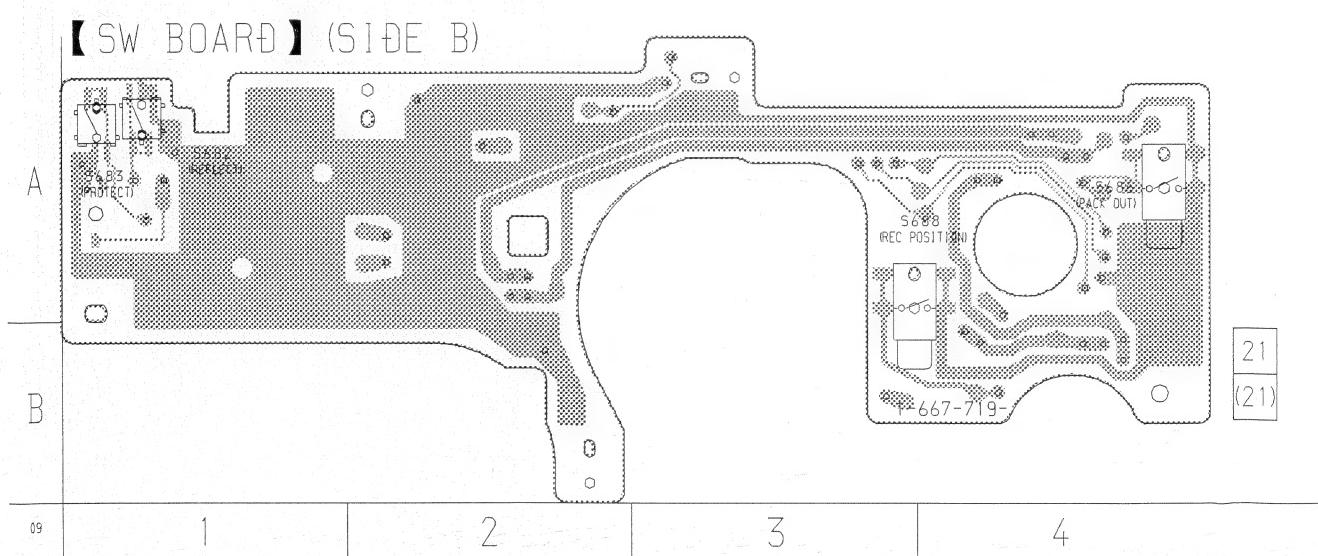
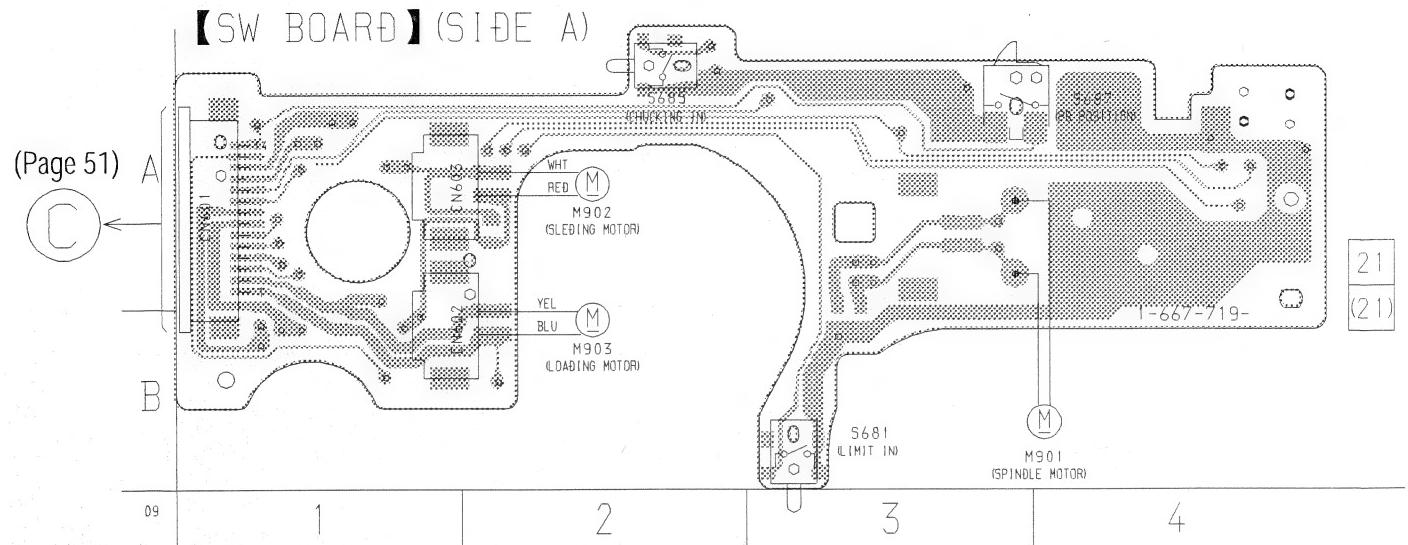
## 7-9. SCHEMATIC DIAGRAM - MD SWITCH SECTION -

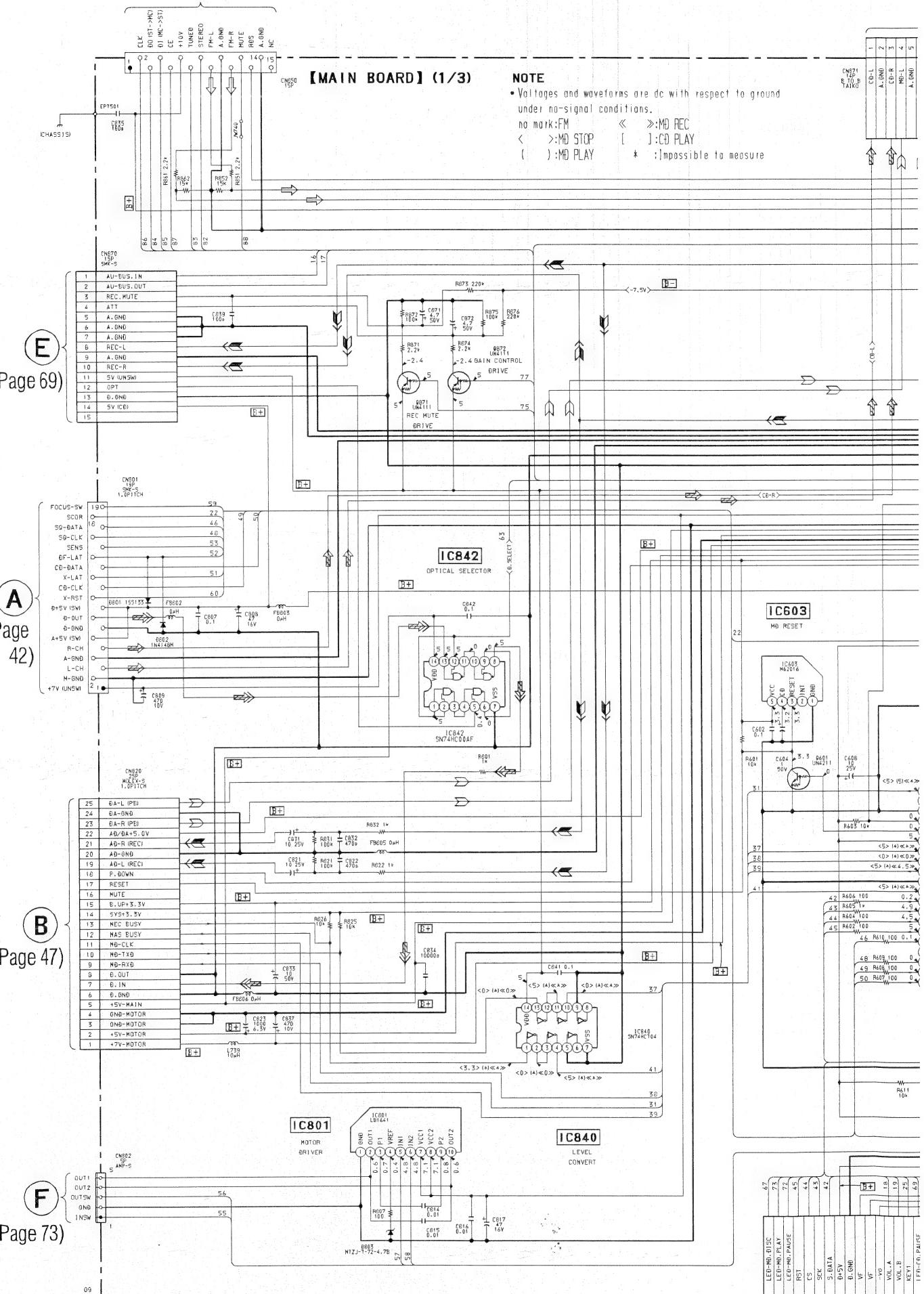
**C**  
(Page 50)



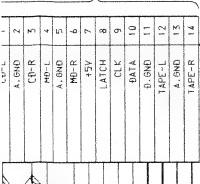
## 7-10. PRINTED WIRING BOARD - MD SWITCH SECTION -

- See page 31 for Circuit Boards Location.

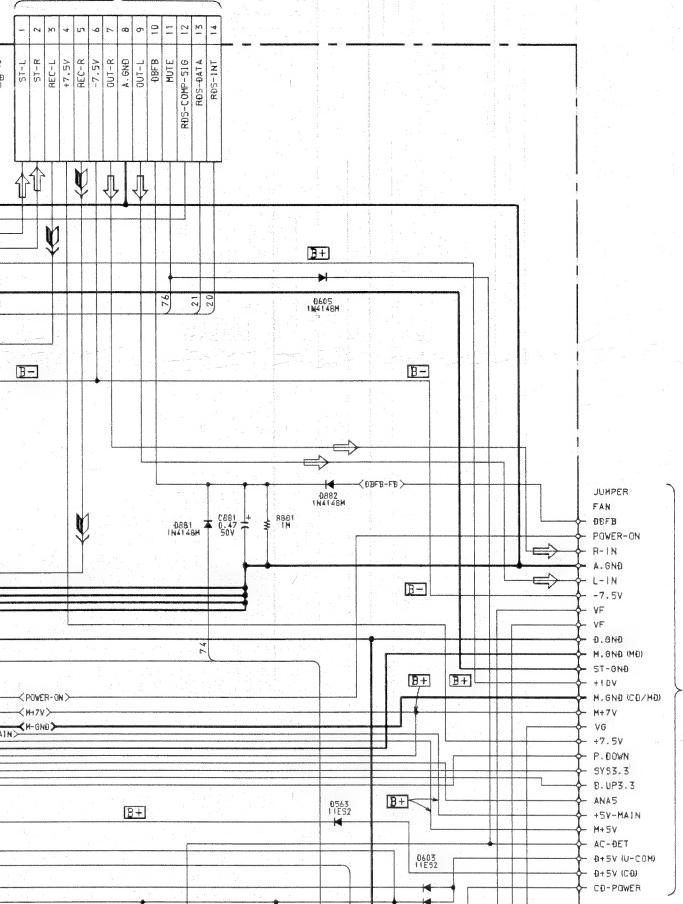




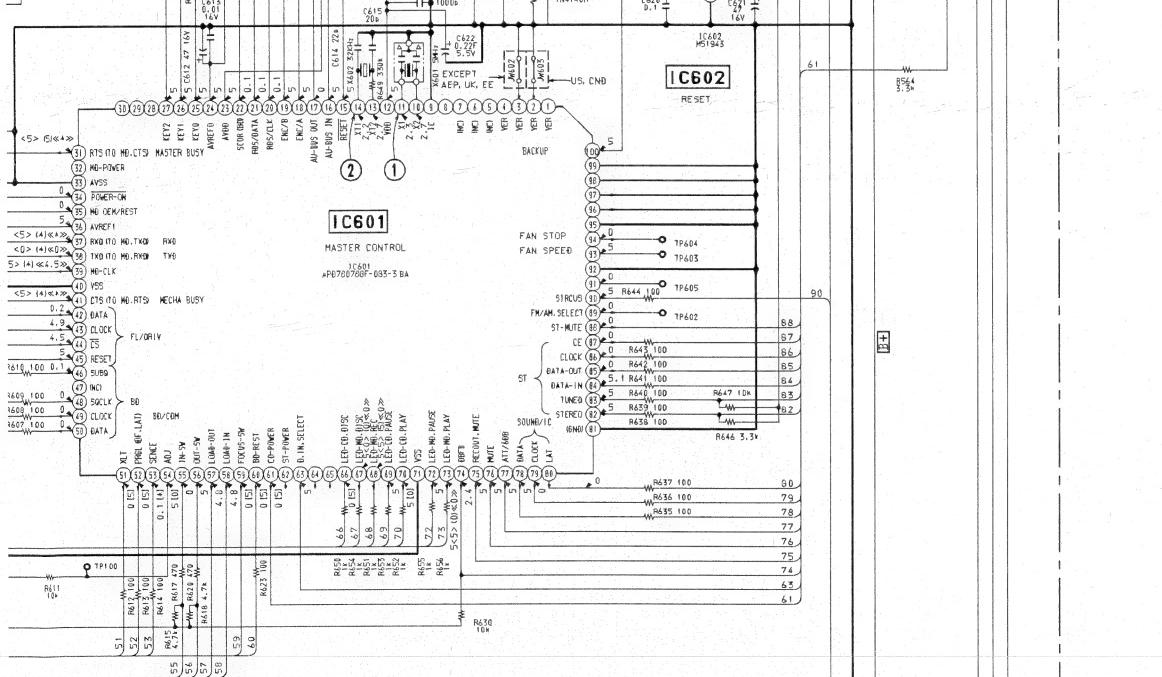
**I** (Page 61)



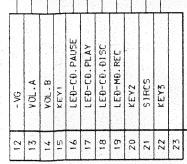
**H** (Page 62)

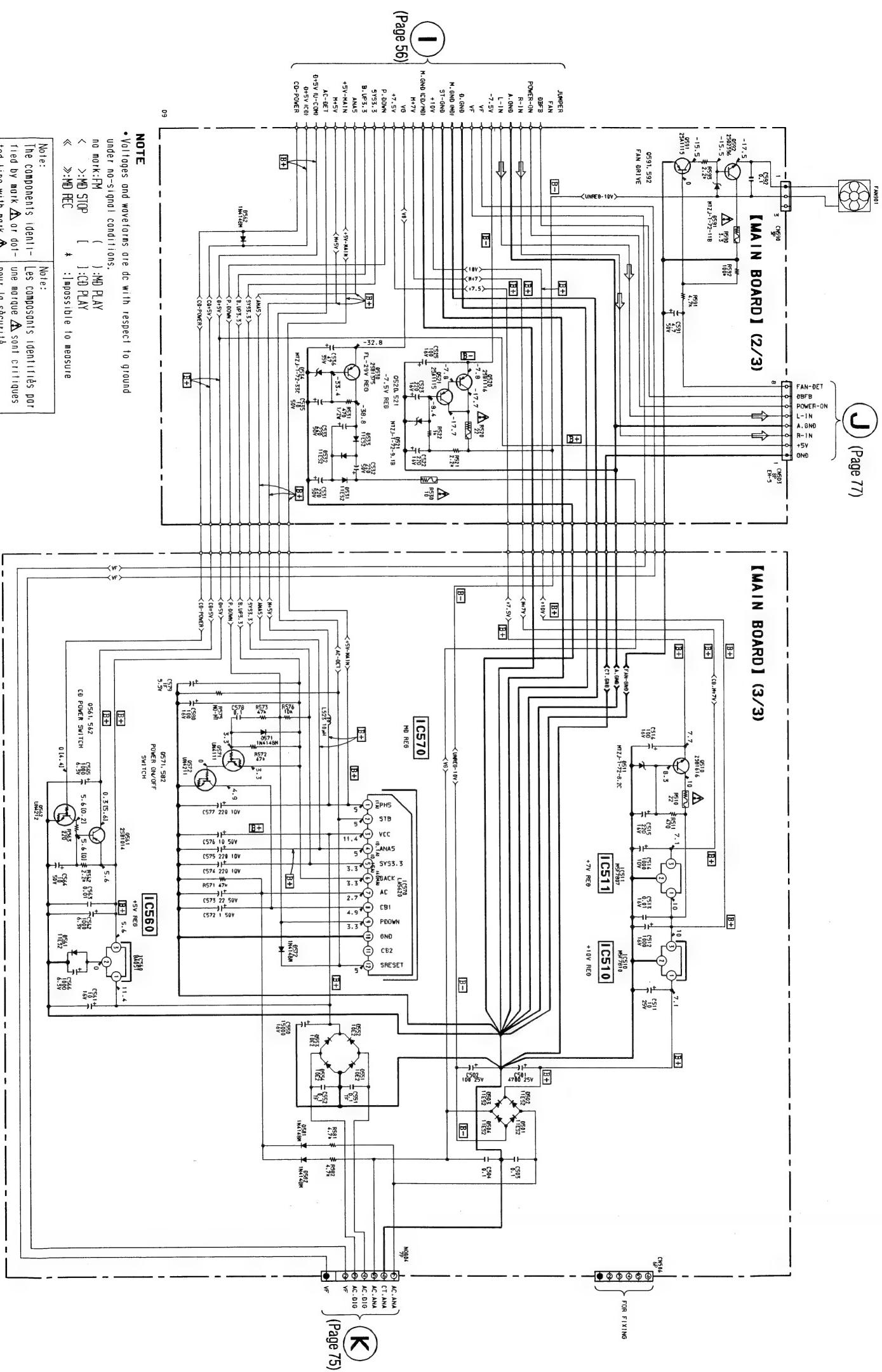


**I** (Page 57)



**G** (Page 66)



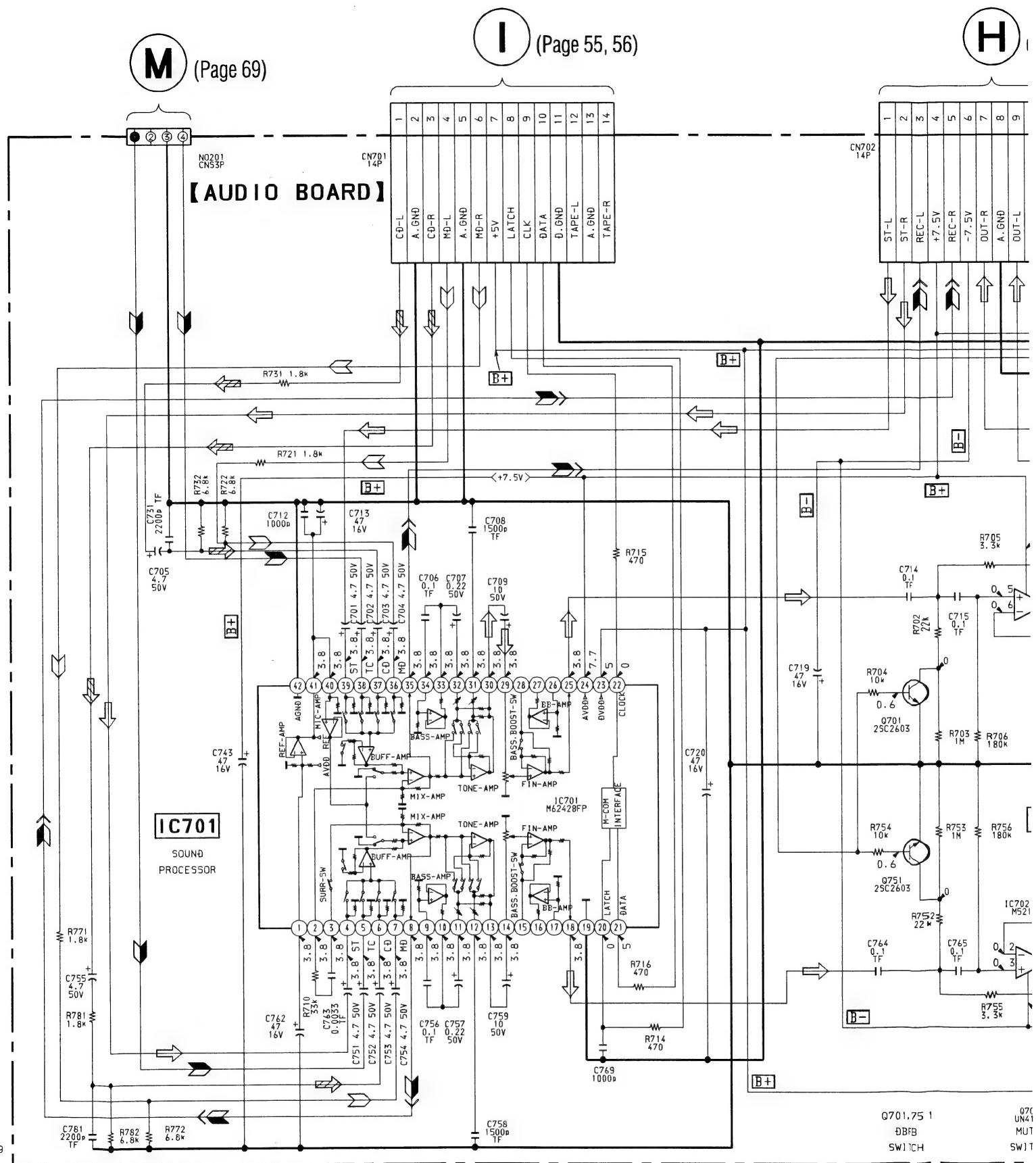


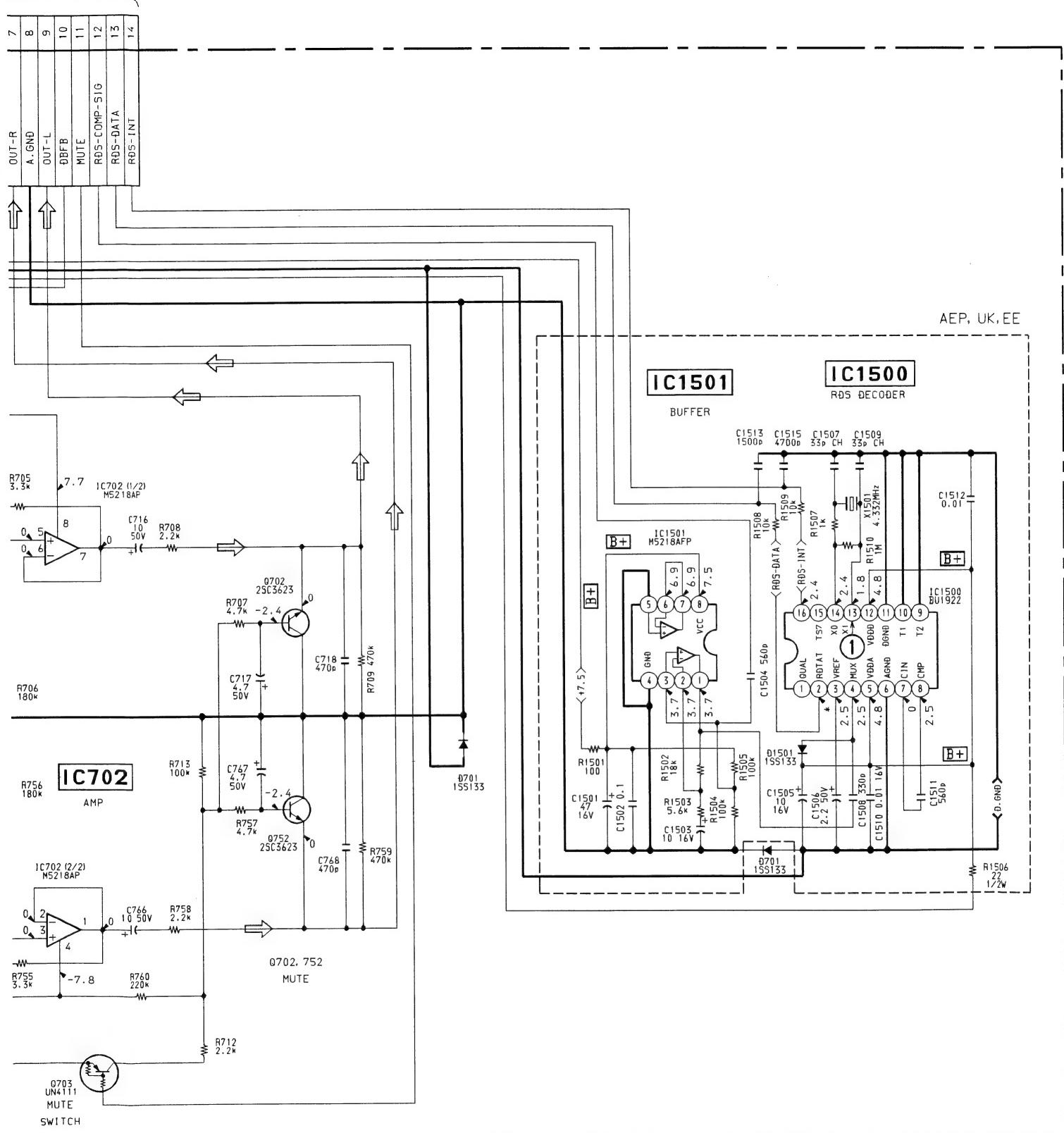
M

(Page 69)

(Page 55, 56)

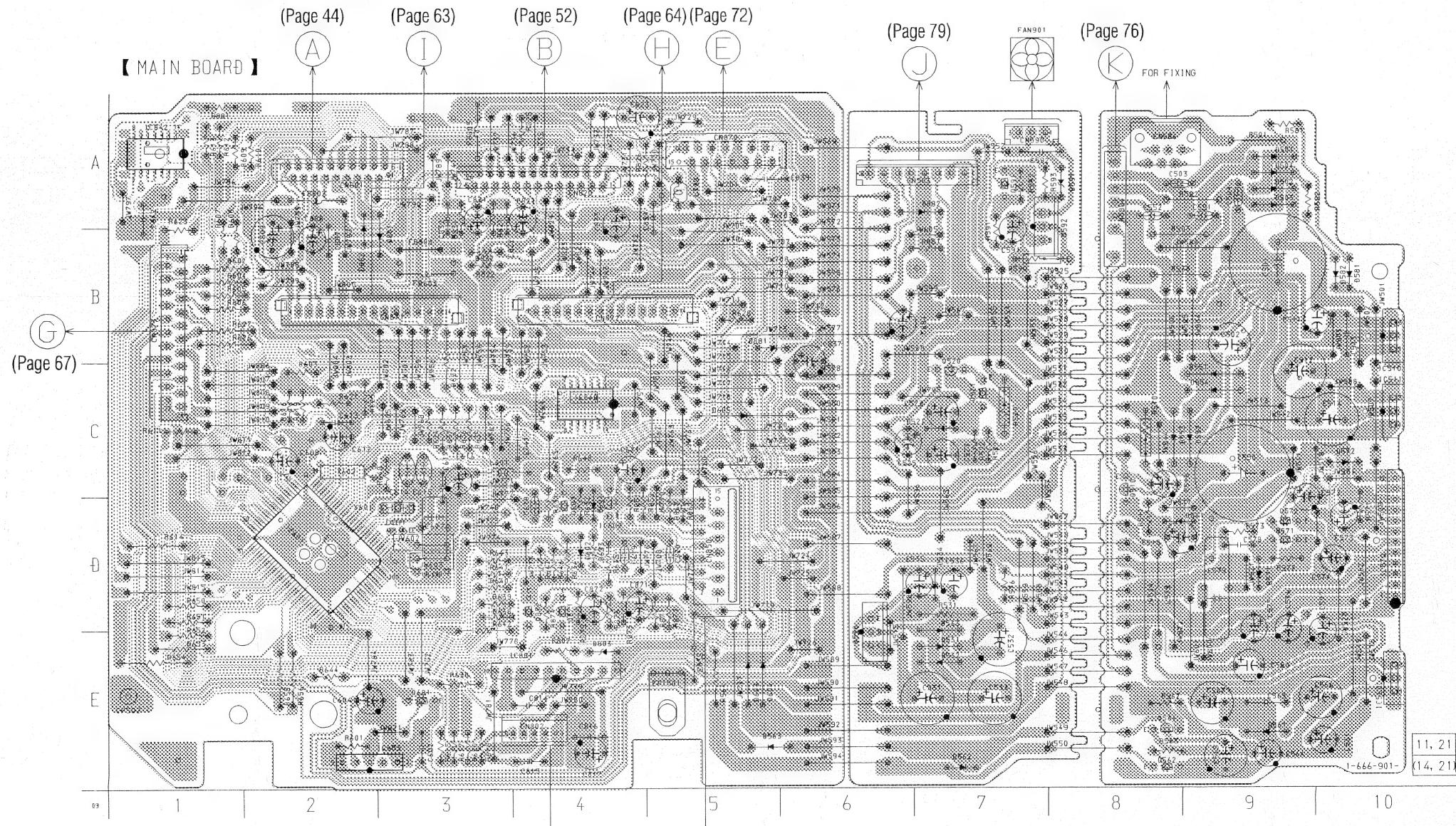
H



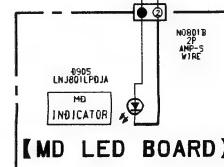
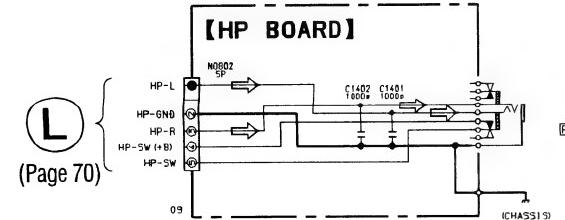
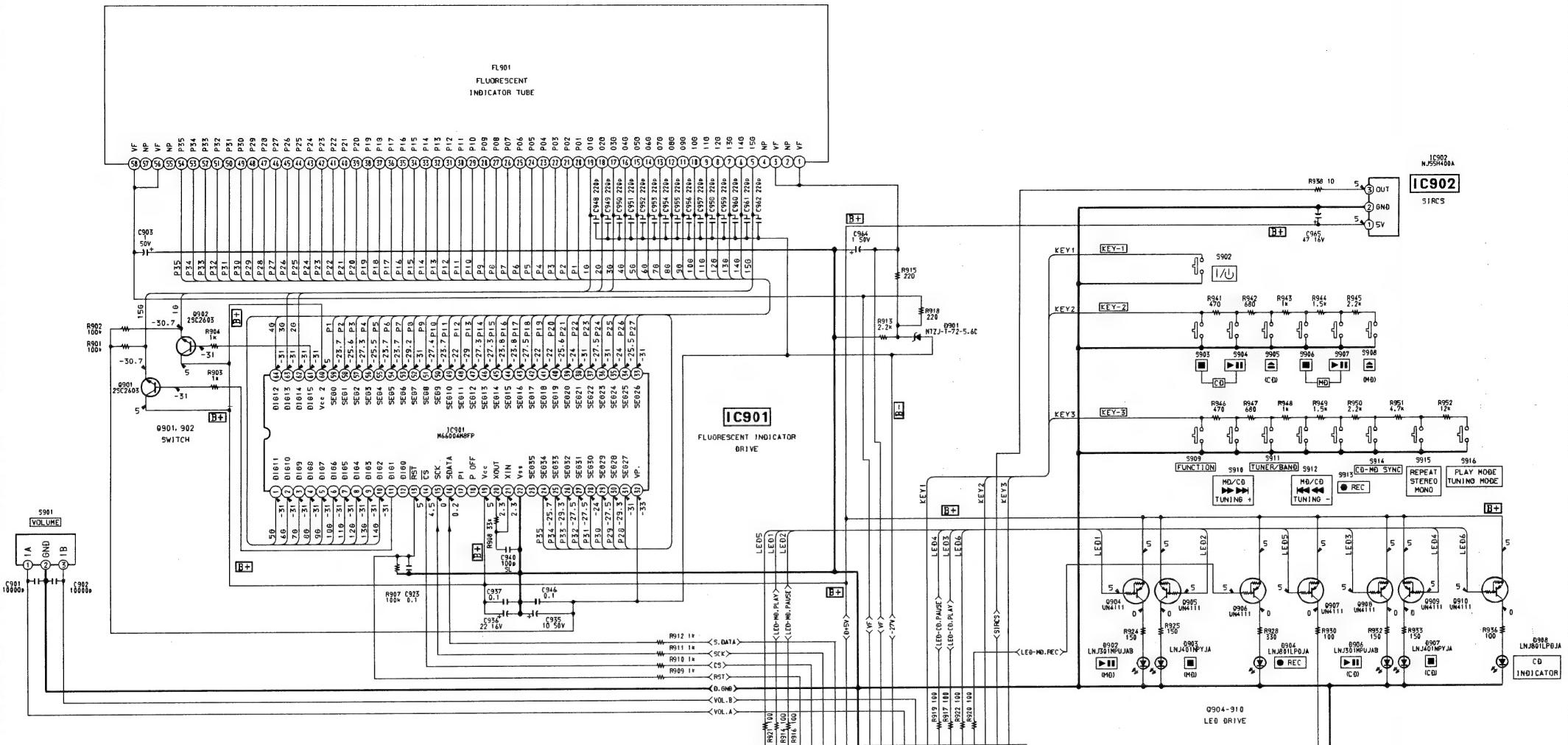


**7-13. PRINTED WIRING BOARD – MAIN SECTION –**

• See page 31 for Circuit Boards Location.

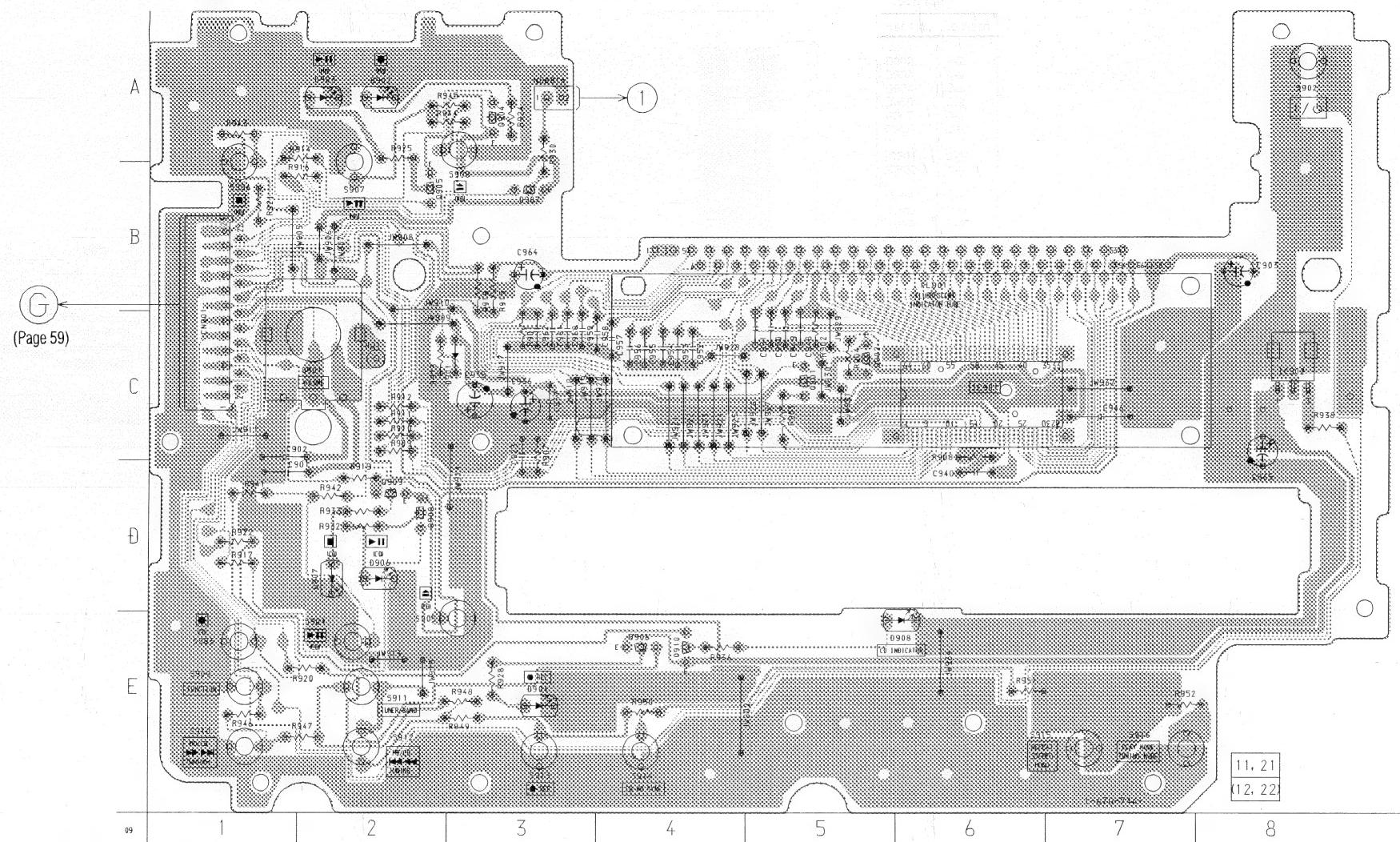


## PANEL BOARD



**7-17. PRINTED WIRING BOARD – PANEL SECTION –**  
 • See page 31 for Circuit Boards Location.

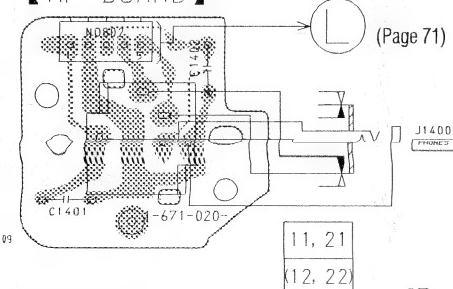
**[PANEL BOARD]**



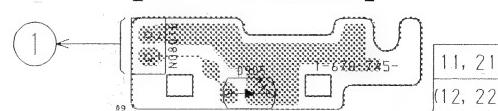
**• Semiconductor Location**

Ref. No.	Location
D901	C-3
D902	A-2
D903	A-2
D904	E-3
D906	D-2
D907	D-2
D908	E-6
IC901	C-6
IC902	C-8
Q901	C-5
Q902	C-5
Q904	A-3
Q905	B-2
Q906	E-4
Q907	B-3
Q908	D-2
Q909	D-2
Q910	E-4

**[HP BOARD]**



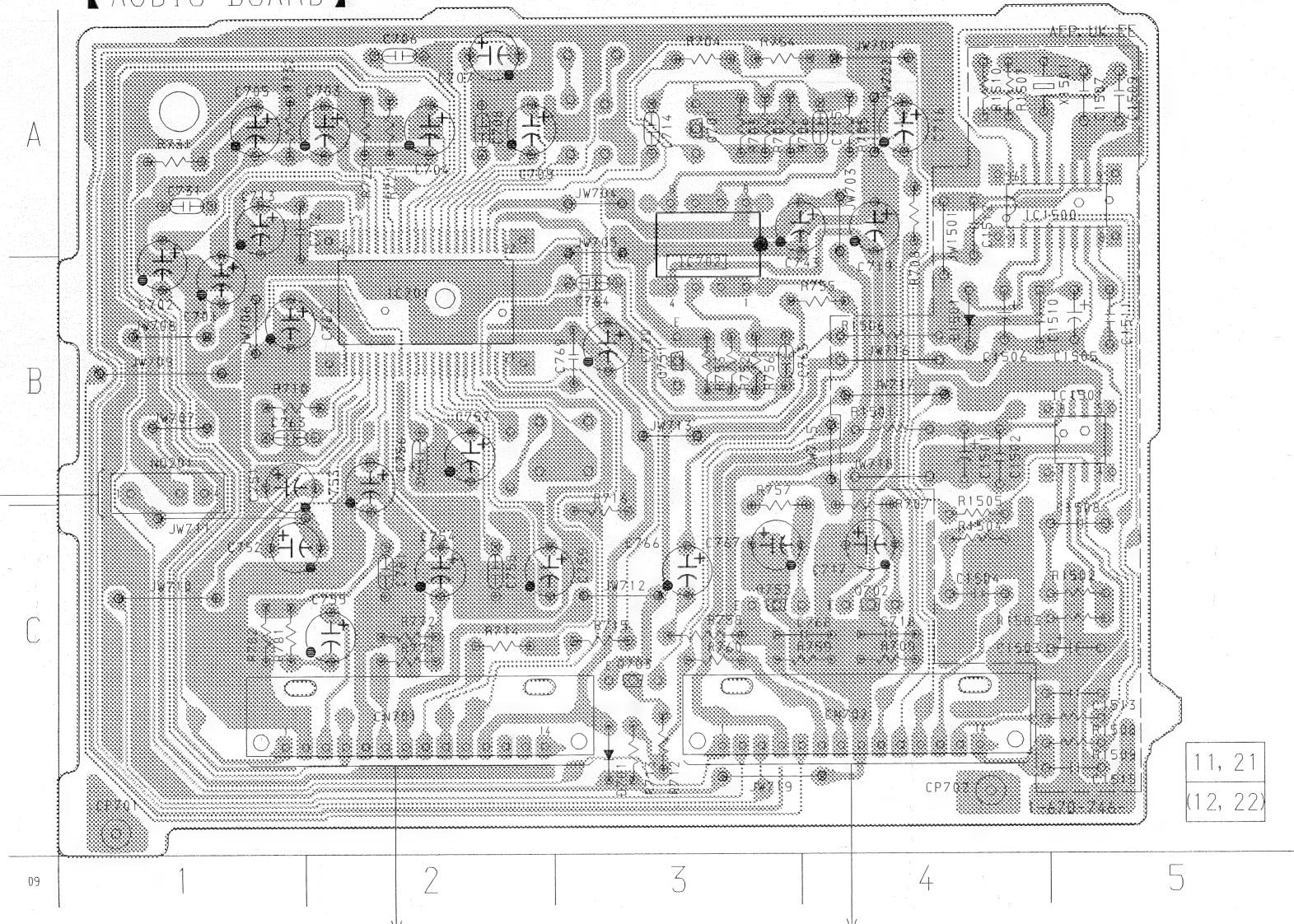
**[MD LED BOARD]**



**7-15. PRINTED WIRING BOARD – AUDIO SECTION –**

• See page 31 for Circuit Boards Location.

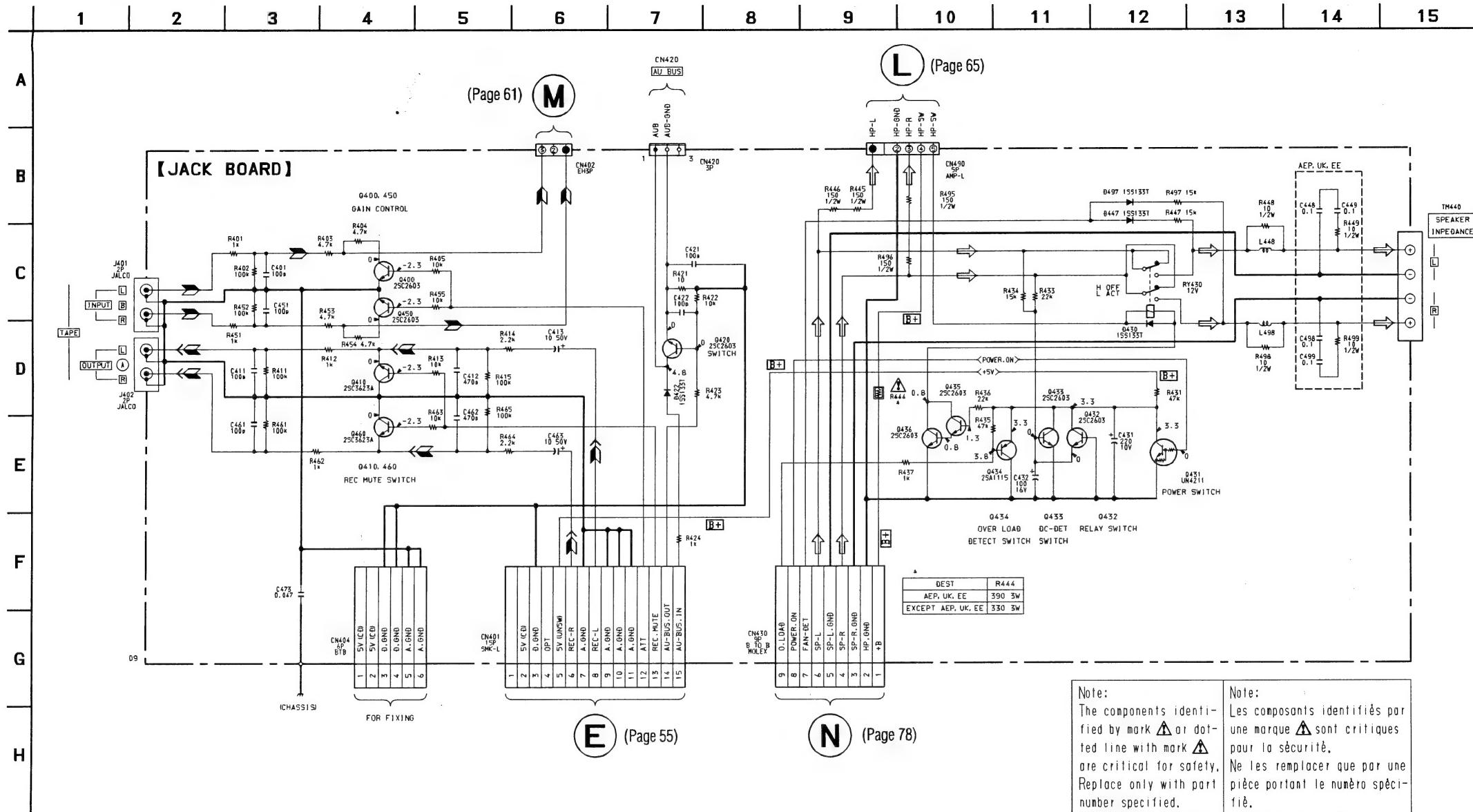
**【AUDIO BOARD】**



• Semiconductor Location

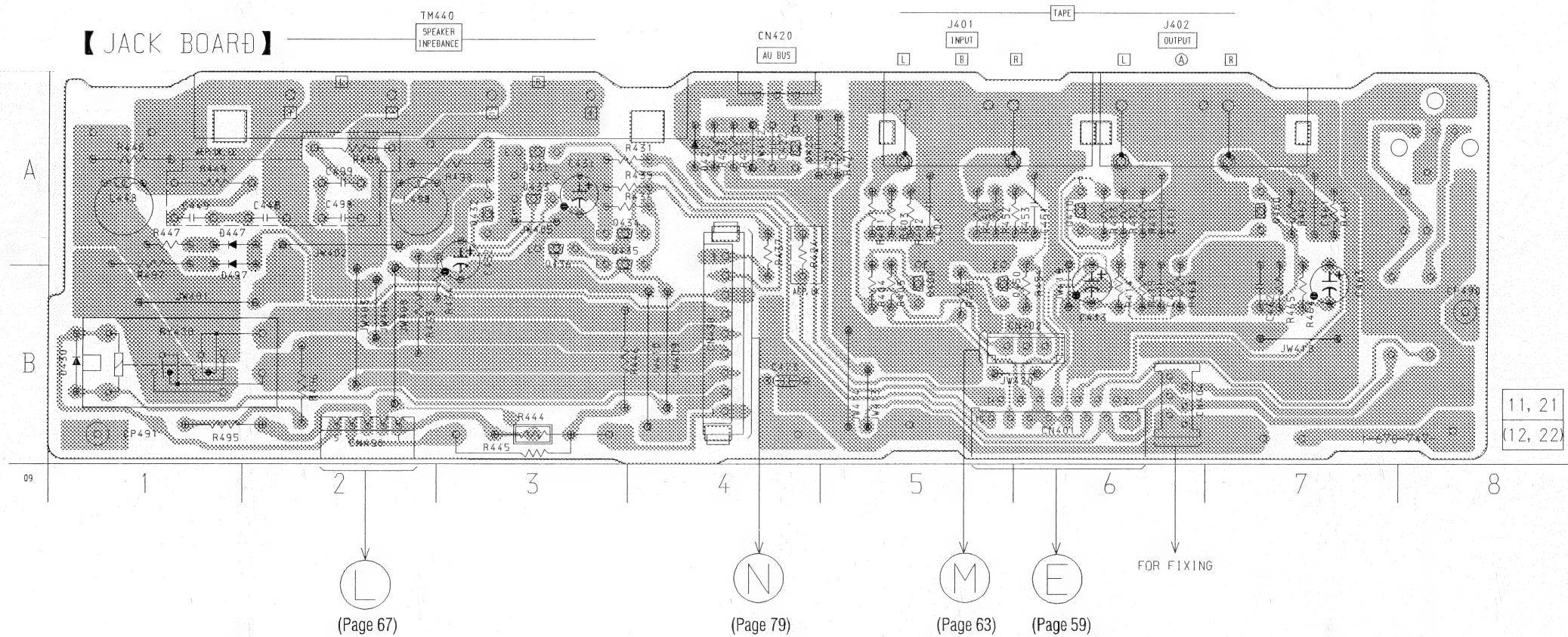
Ref. No.	Location
D701	C-3
D1501	B-4
IC701	B-2
IC702	B-3
IC1500	A-4
IC1501	B-5
Q701	A-3
Q702	C-4
Q703	C-3
Q751	B-3
Q752	C-3

## **7-18. SCHEMATIC DIAGRAM – JACK SECTION –**

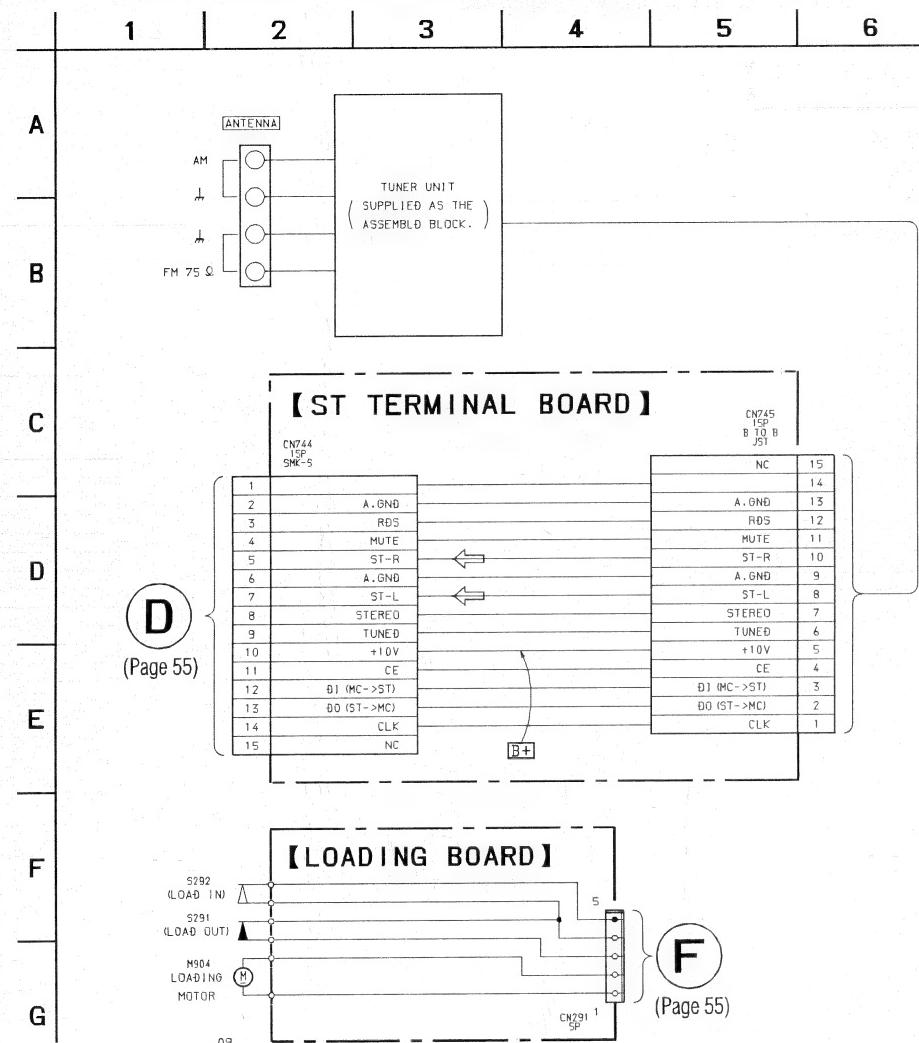


## **7-19. PRINTED WIRING BOARD – JACK SECTION –**

- See page 31 for Circuit Boards Location.

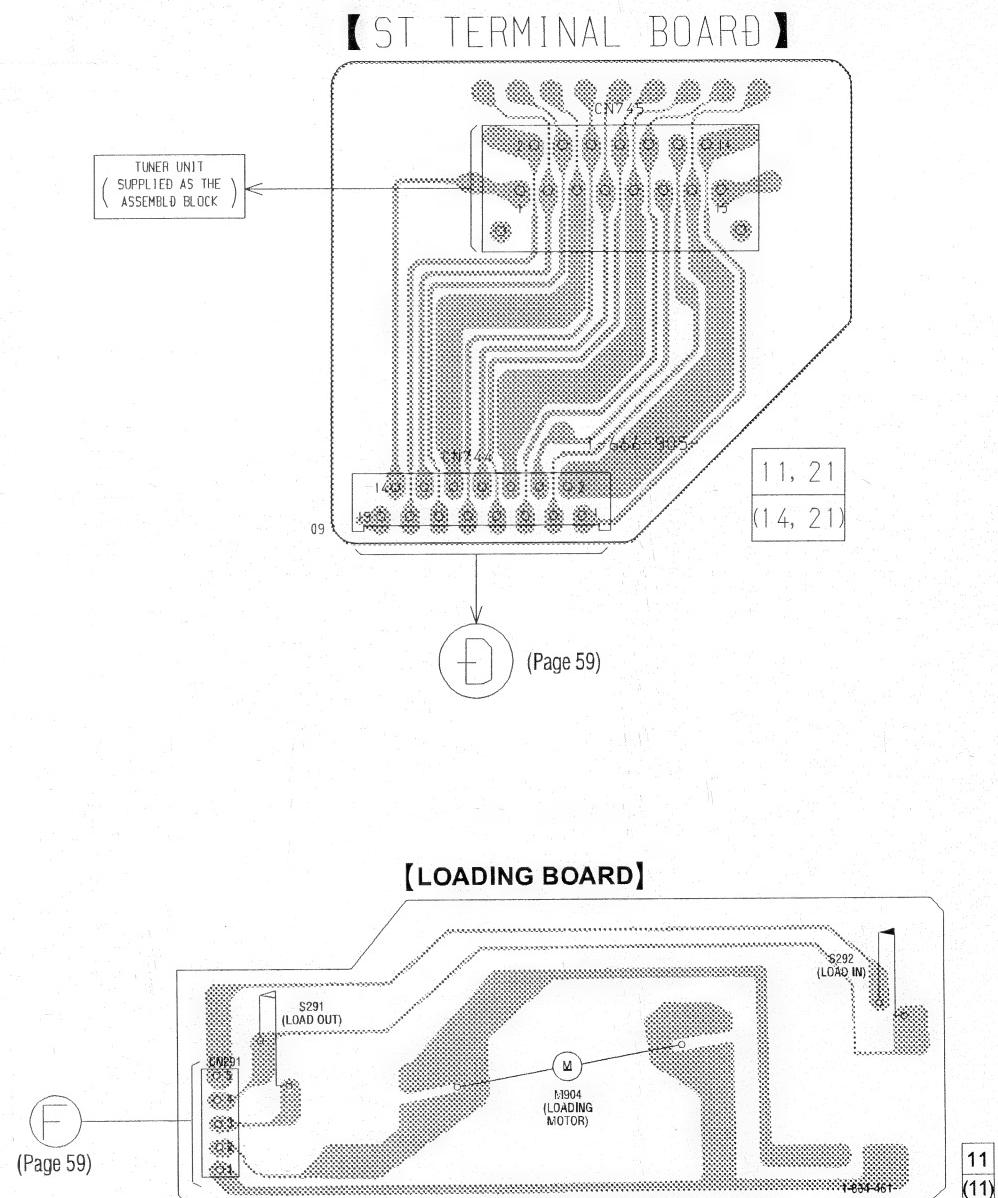


**7-20. SCHEMATIC DIAGRAM – ST TERMINAL/LOADING SECTION –**

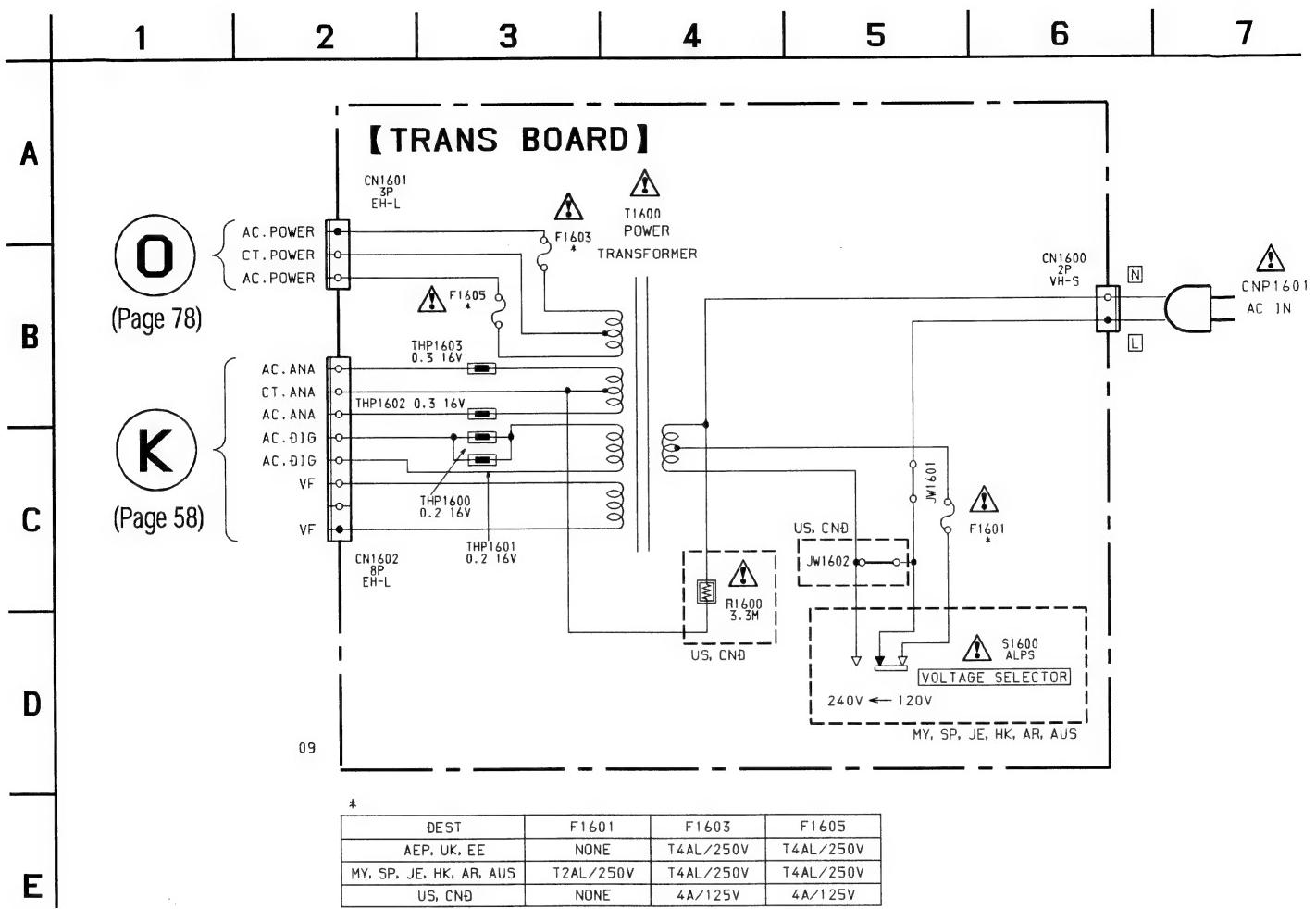


**7-21. PRINTED WIRING BOARD – ST TERMINAL/LOADING SECTION –**

• See page 31 for Circuit Boards Location.

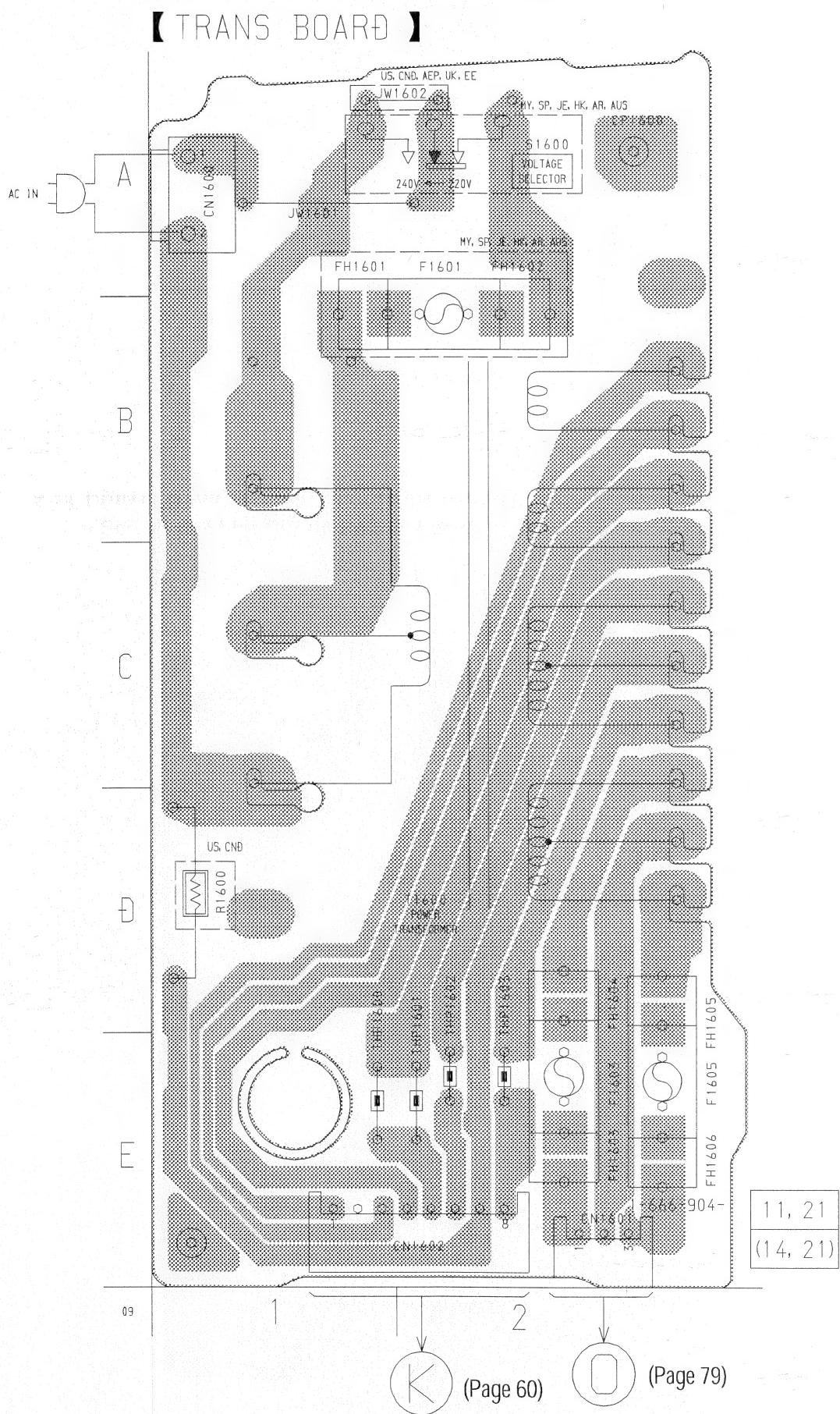


## 7-22. SCHEMATIC DIAGRAM - TRANS SECTION -



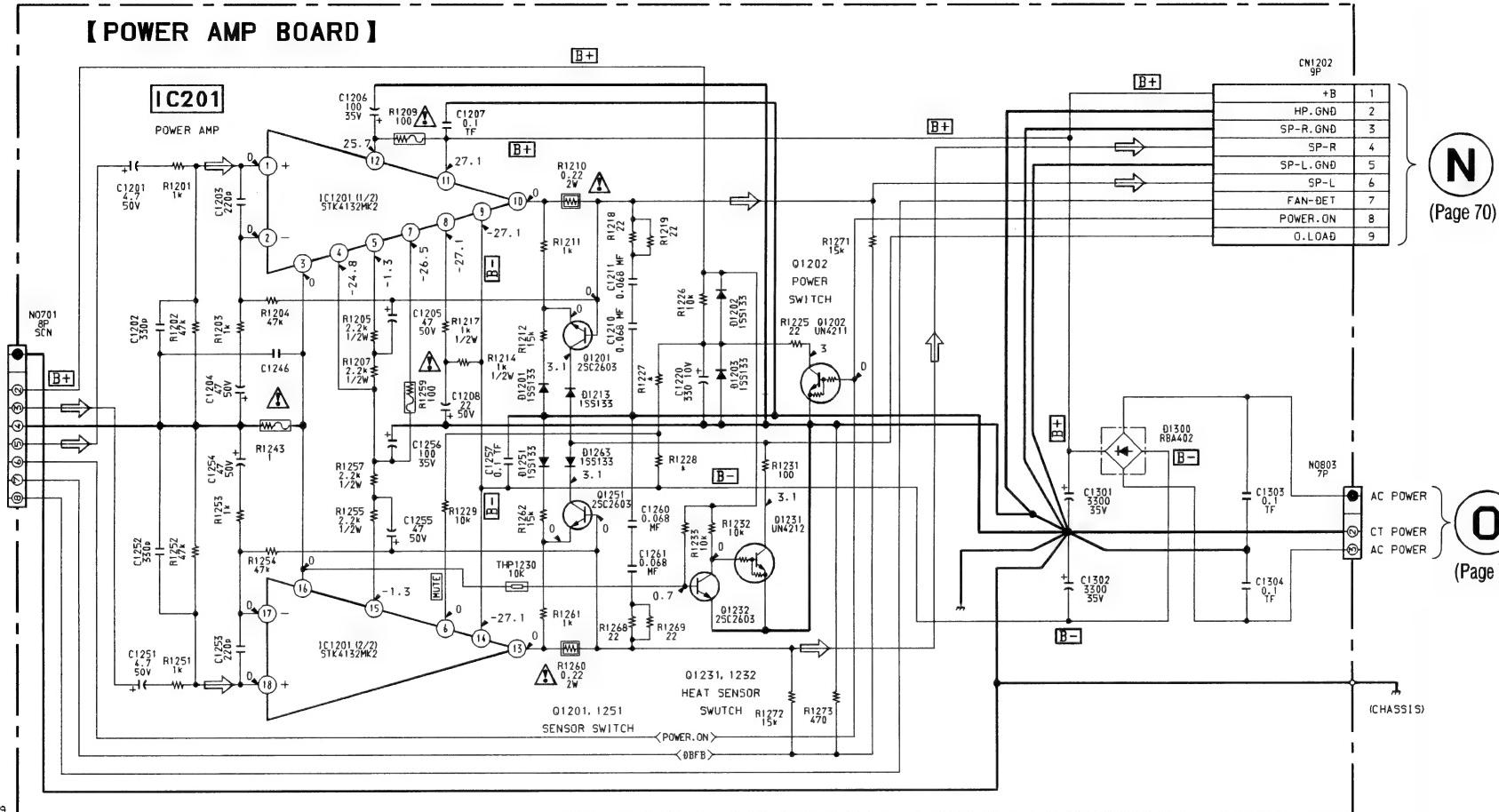
### 7-23. PRINTED WIRING BOARD - TRANS SECTION -

• See page 31 for Circuit Boards Location.



7-24. SCHEMATIC DIAGRAM – POWER AMP SECTION –

1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12



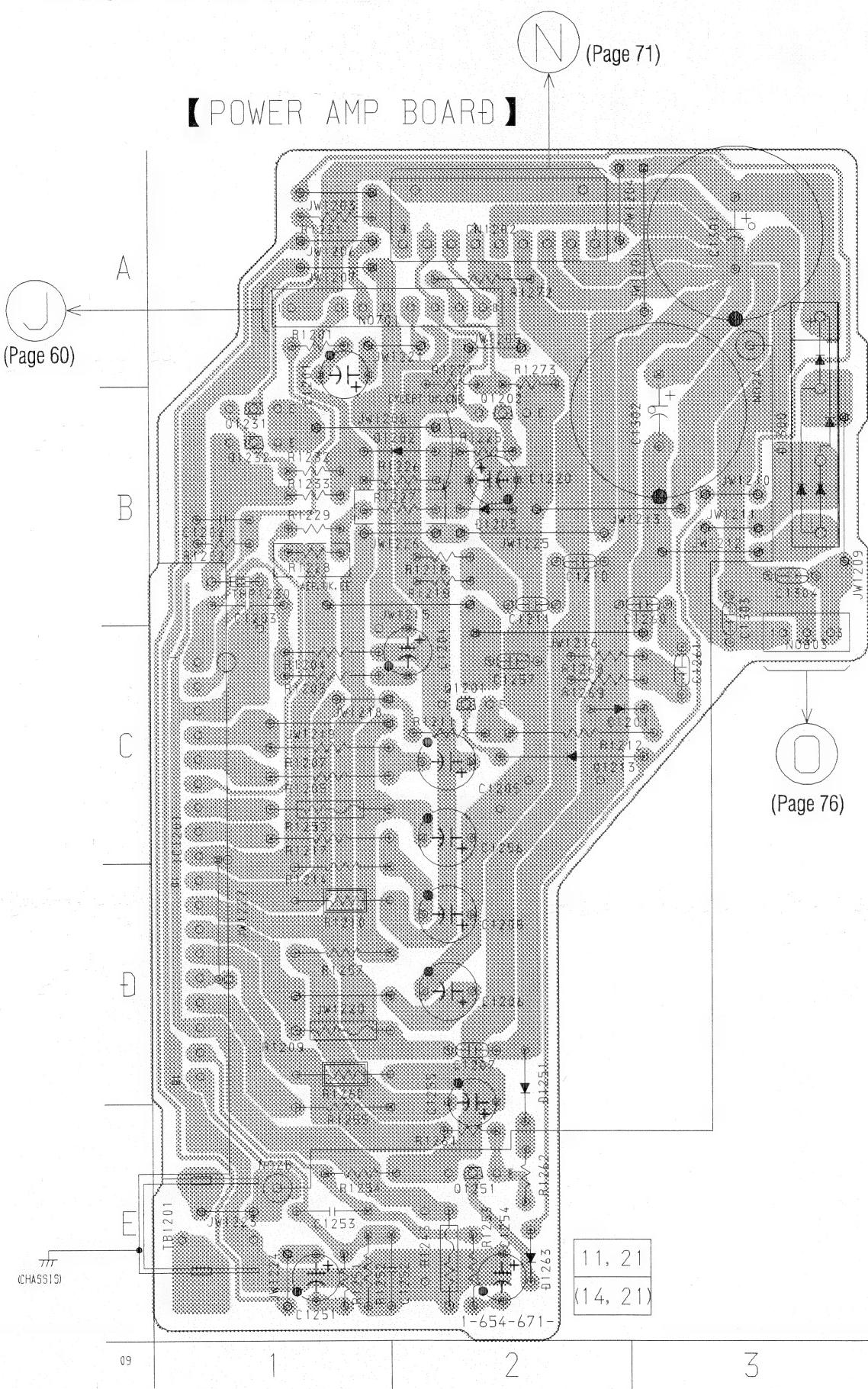
Note:  
The components identified by mark **⚠** or dotted line with mark **⚠** are critical for safety.  
Replace only with part number specified.

Note:  
Les composants identifiés par une marque **⚠** sont critiques pour la sécurité.  
Ne les remplacer que par une pièce portant le numéro spécifié.

DEST	R1227	R1220
US, CAN	10k	100k
AEP, UK, EE	9.1k	110k
MY, SP, JE, HK, AR, AUS	9.1k	100k

## **7-25. PRINTED WIRING BOARD – POWER AMP SECTION –**

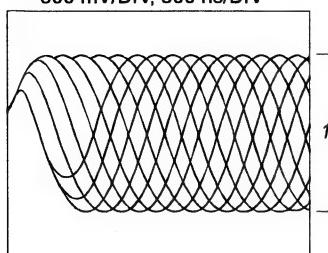
- See page 31 for Circuit Boards Location.



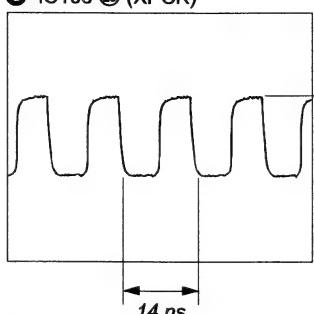
• Waveforms

- CD Section -

① IC101 ⑩ (RFO) (PLAY Mode)  
500 mV/DIV, 500 ns/DIV

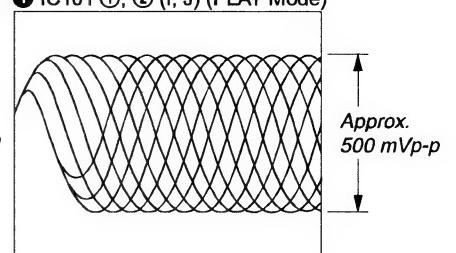


⑥ IC103 ⑪ (XPCK)

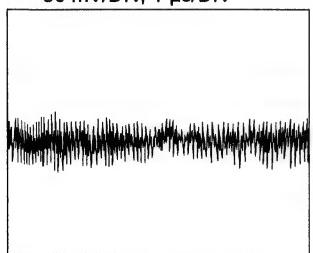


- MD Section -

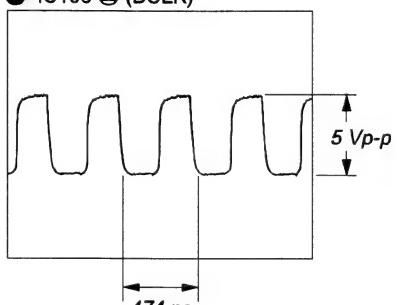
① IC101 ①, ② (I, J) (PLAY Mode)



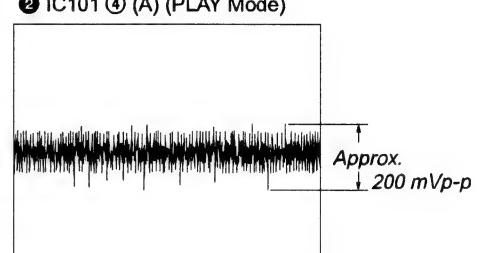
② IC101 ④ (TEI) (PLAY Mode)  
50 mV/DIV, 1 μs/DIV



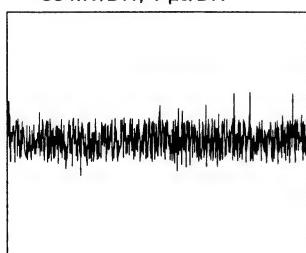
⑦ IC103 ⑫ (BCLK)



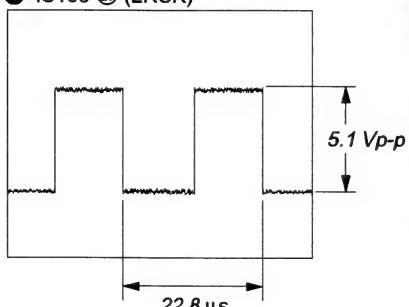
② IC101 ④ (A) (PLAY Mode)



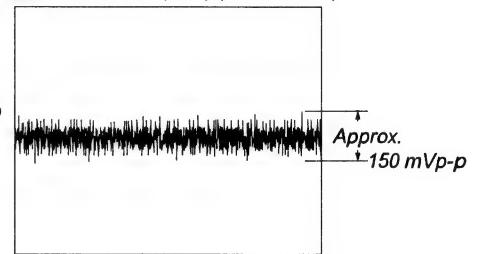
③ IC101 ⑧ (FEI) (PLAY Mode)  
50 mV/DIV, 1 μs/DIV



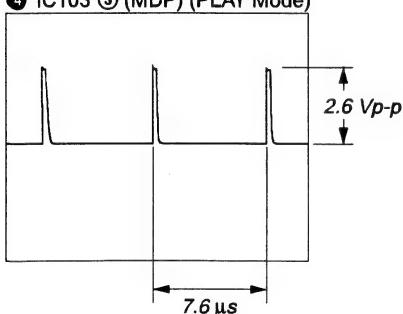
⑧ IC103 ⑬ (LRCK)



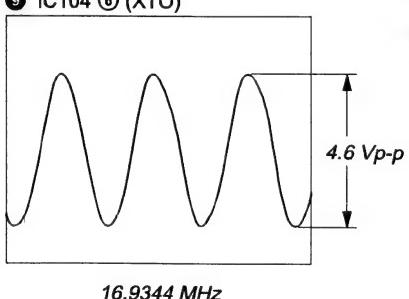
③ IC101 ⑧, ⑨ (E, F) (PLAY Mode)



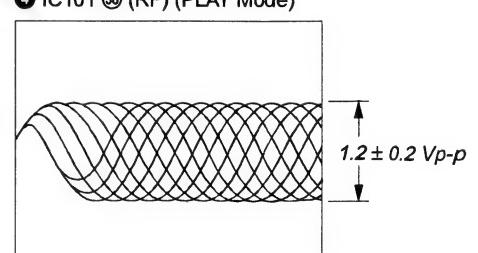
④ IC103 ⑬ (MDP) (PLAY Mode)



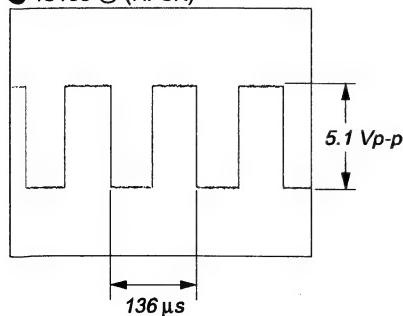
⑨ IC104 ⑯ (XTO)



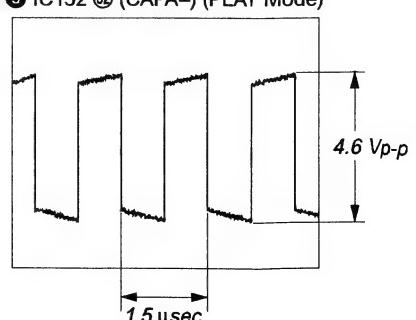
④ IC101 ⑩ (RF) (PLAY Mode)



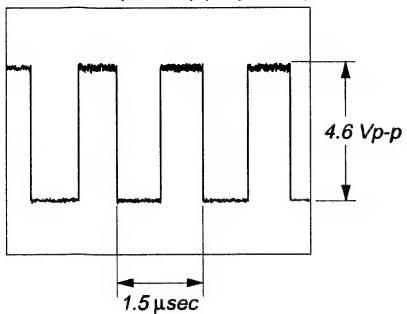
⑤ IC103 ⑭ (RFCK)



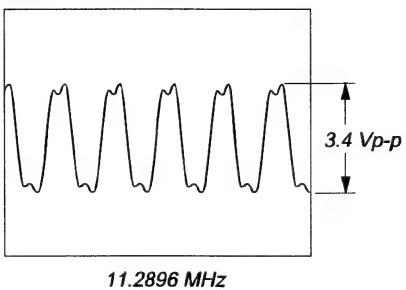
⑤ IC152 ⑮ (CAPA-) (PLAY Mode)



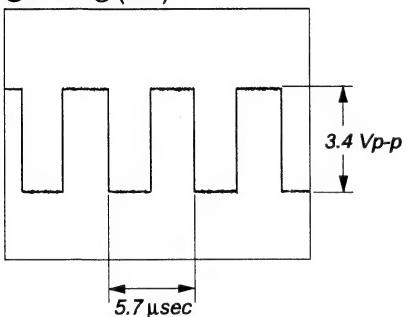
⑥ IC152 ⑩ (CAPA+) (Play Mode)



⑪ IC121 ⑦ (FS256)

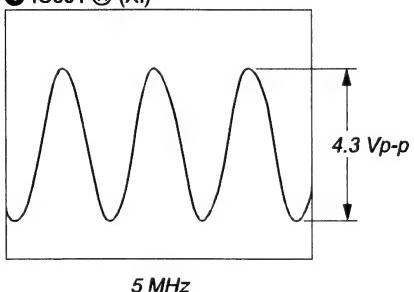


⑦ IC121 ⑩ (FS4)

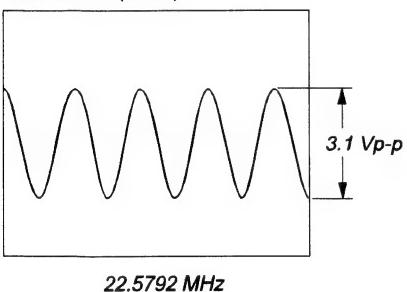


**- MAIN Section -**

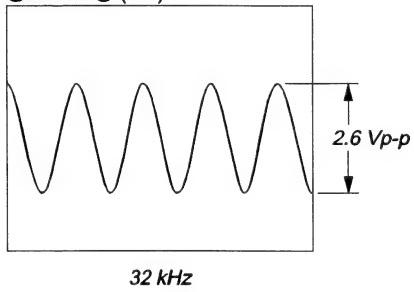
① IC601 ⑪ (XI)



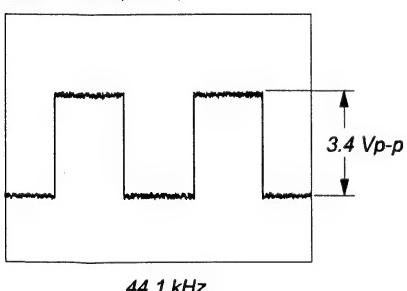
⑧ IC121 ⑯ (OSCI)



⑨ IC121 ⑫ (XTI)

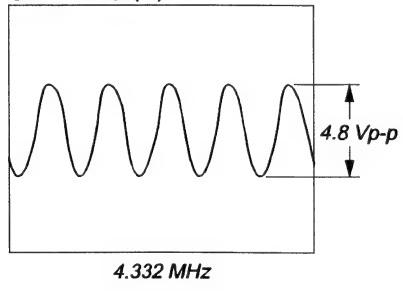


⑩ IC121 ⑬ (LRCK)

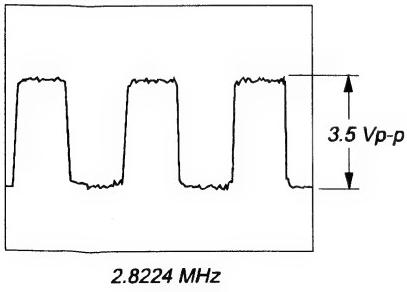


**- AUDIO Section -**

① IC1500 ⑬ (XI)



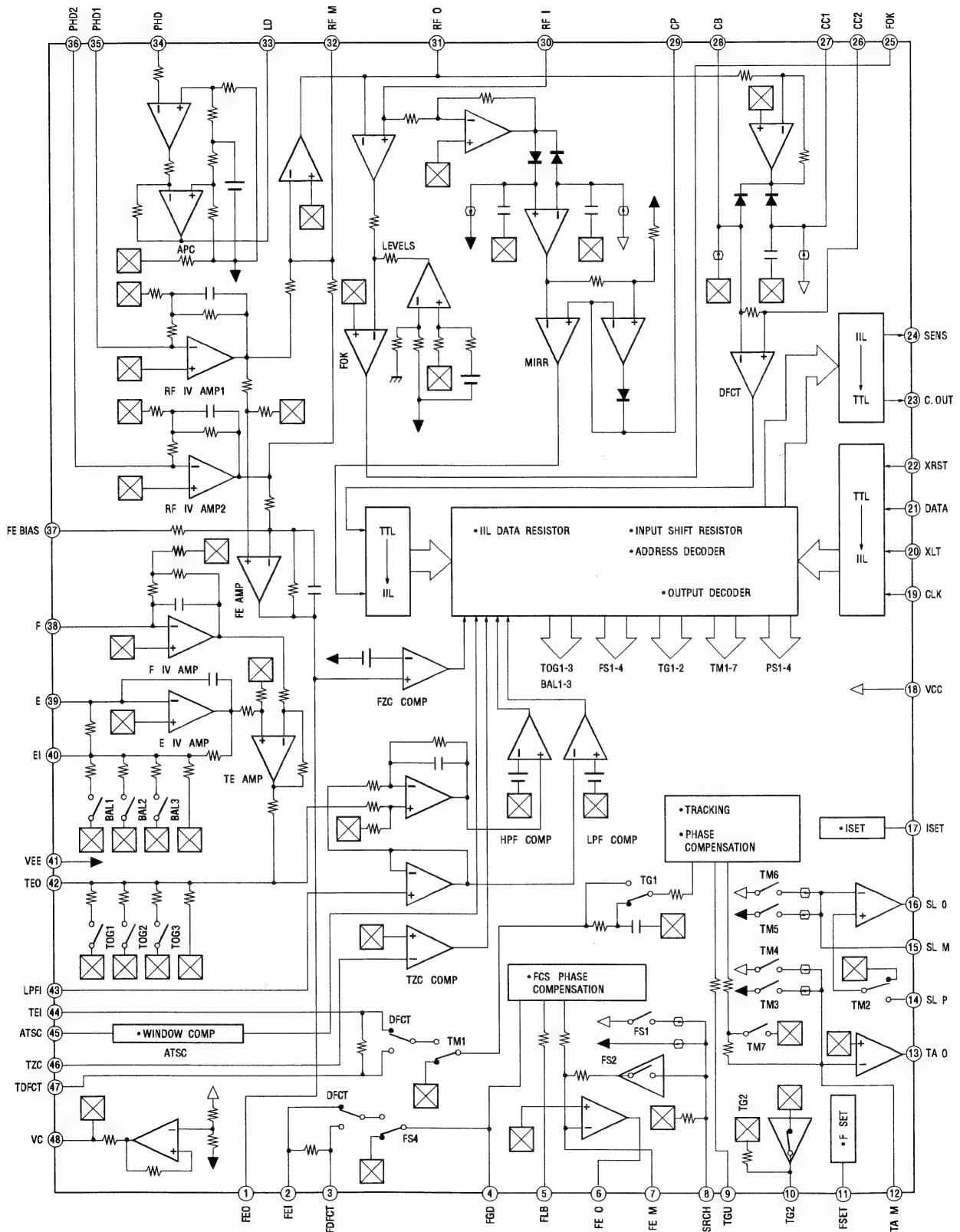
⑪ IC121 ⑭ (XBCK)



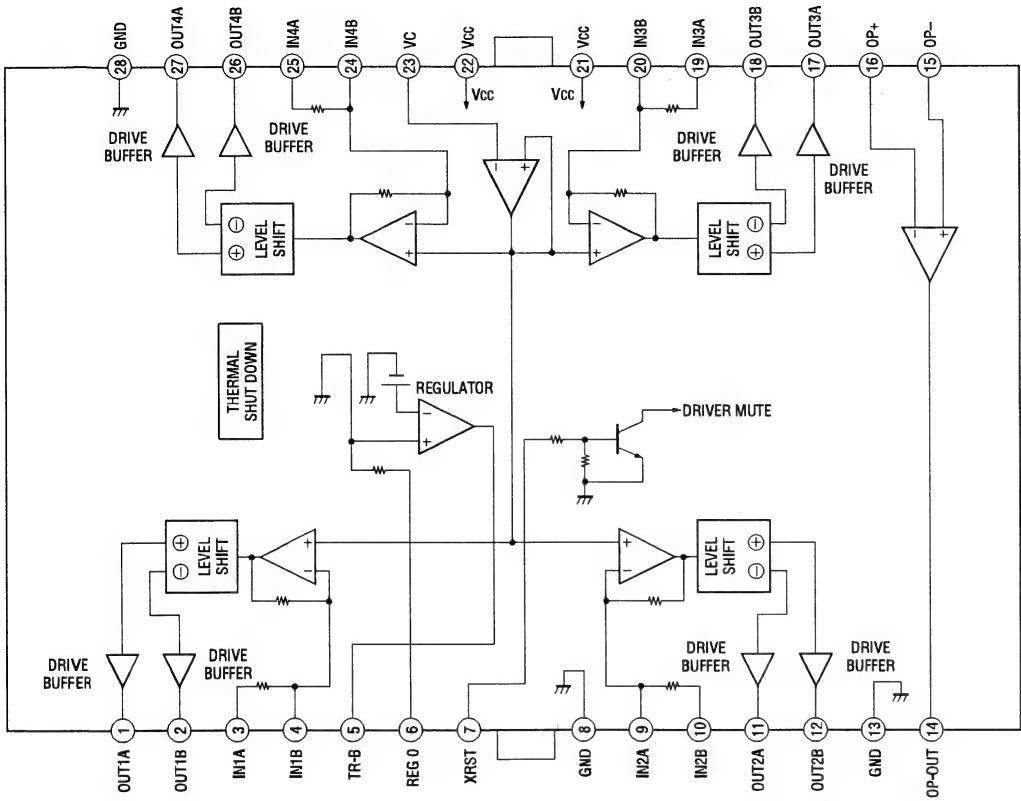
• IC Block Diagrams

- CD Section -

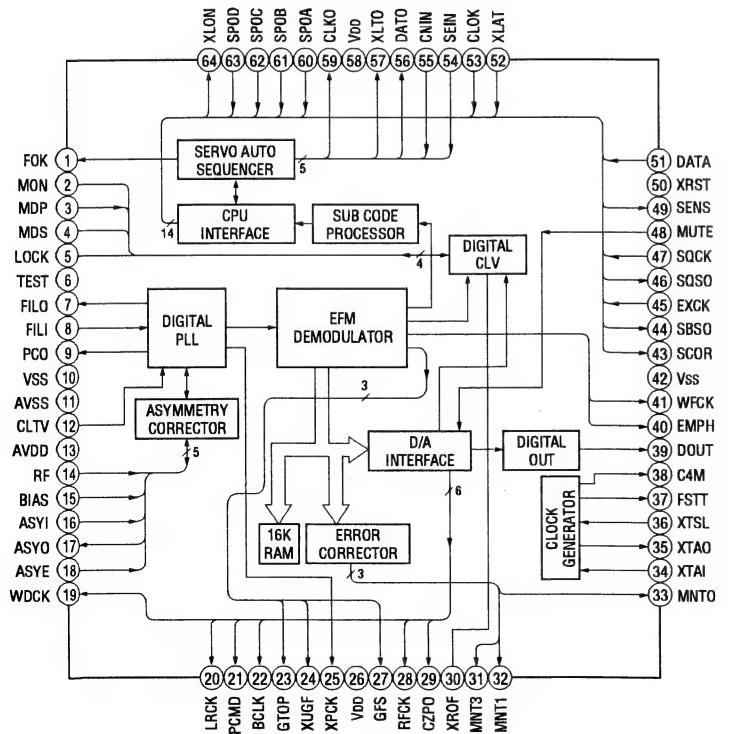
IC101 CXA1782BQ



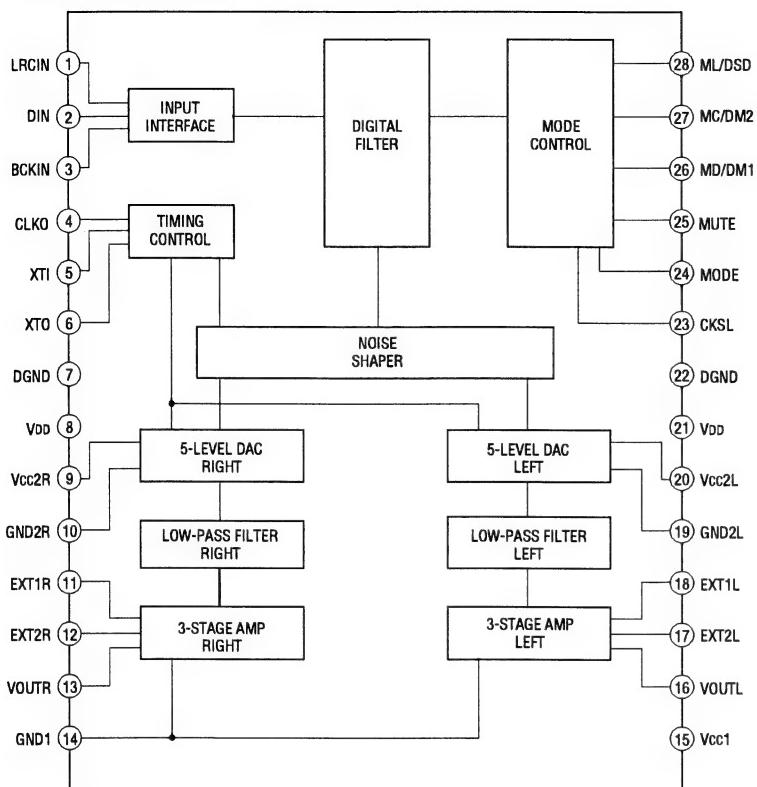
IC102 BA6397FP



IC103 CXD2507AQ

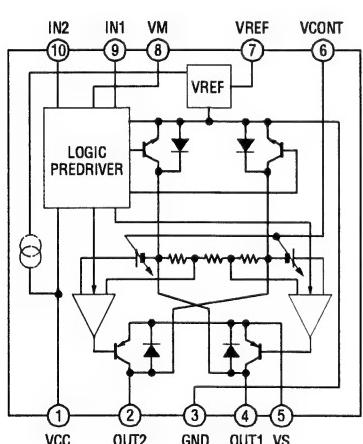


**IC104 PCM1710U-B**

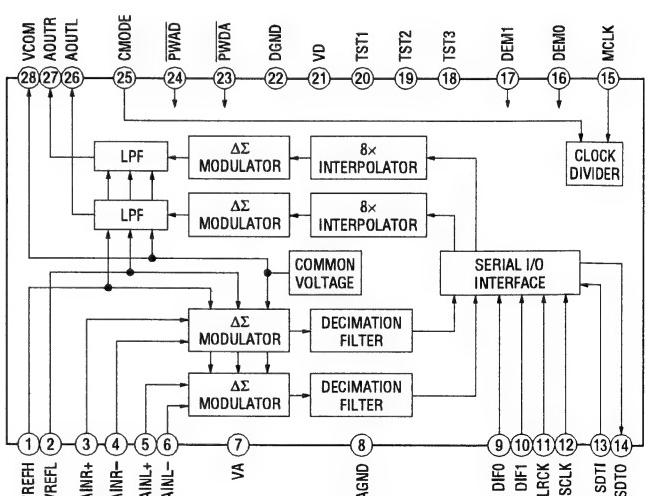


**- MD Section -**

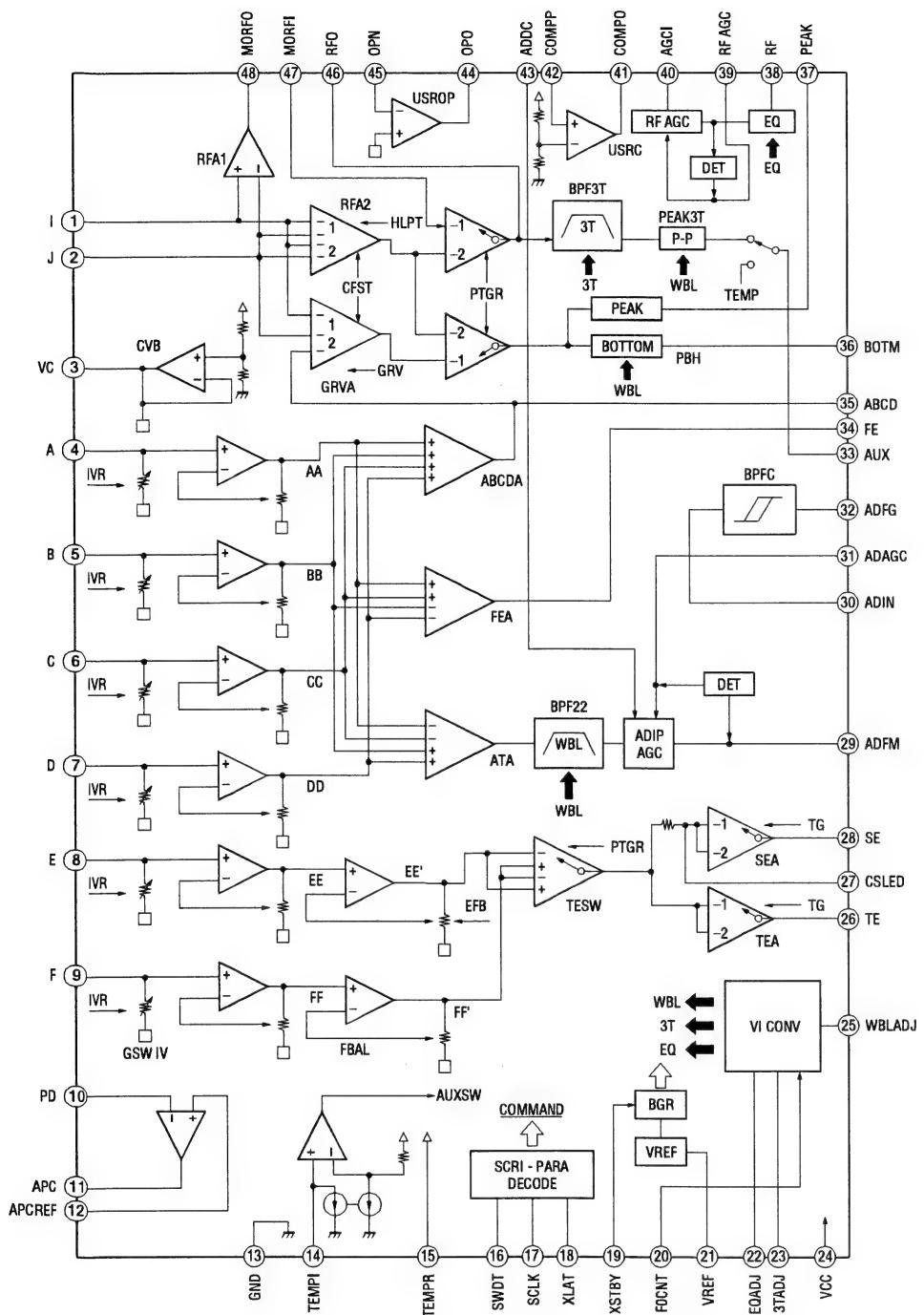
**IC153 LB1830-S-TE-L**



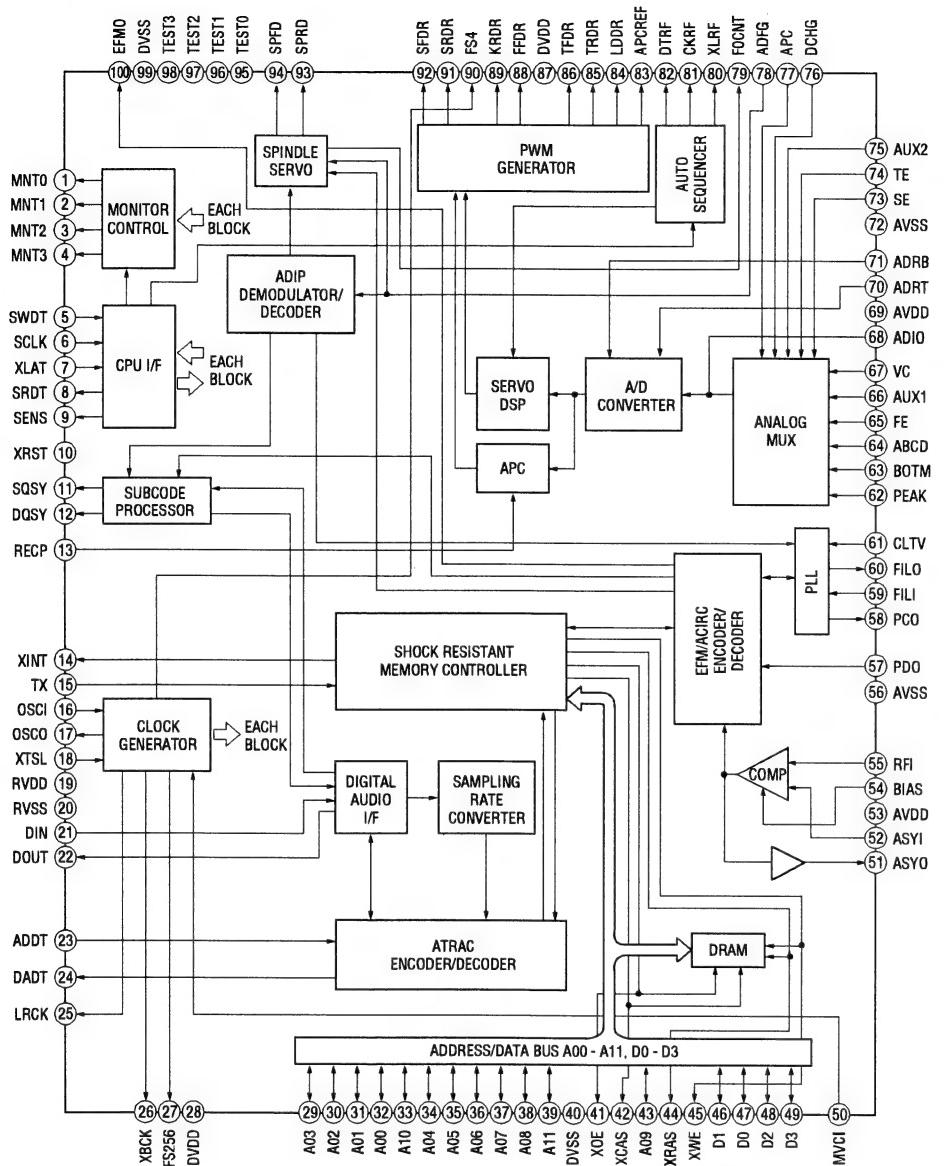
**IC201 AK4520A-VF-E2**



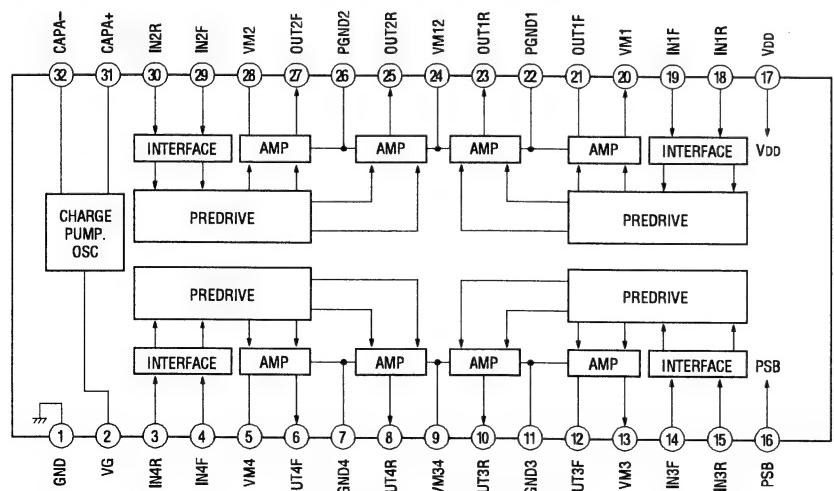
## IC101 CXA2523AR



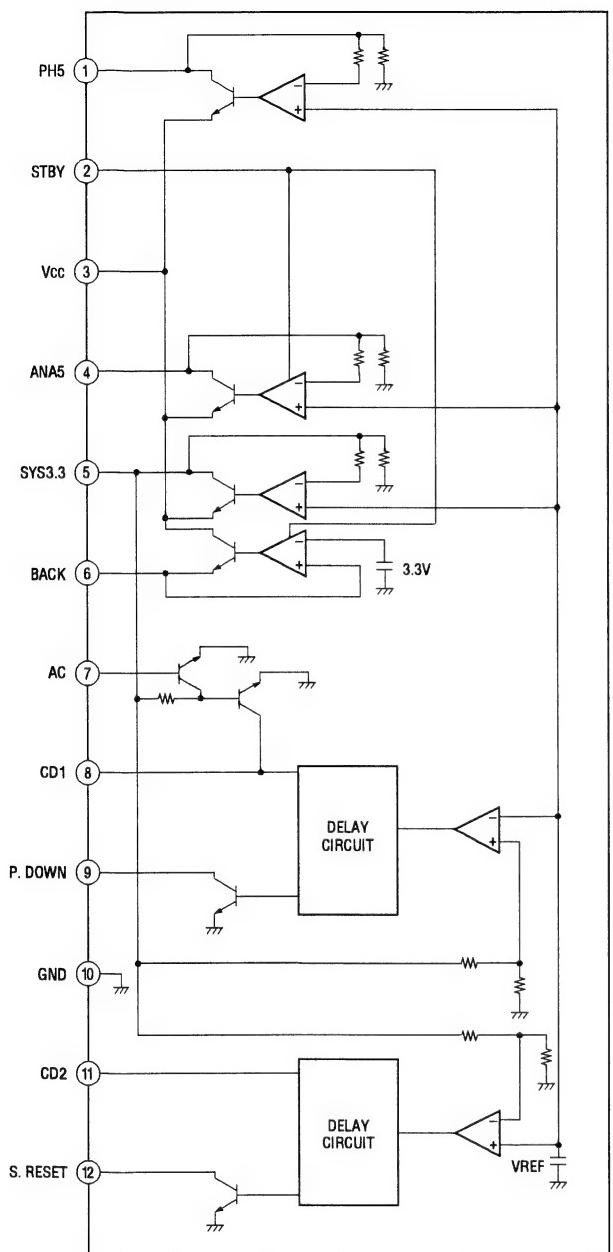
**IC121 CXD2652AR**



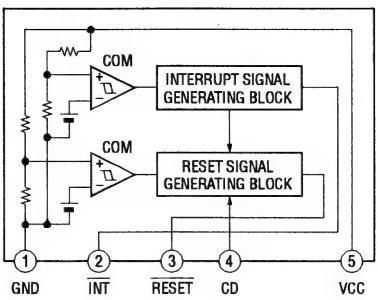
**IC152 BH6511FS-E2**



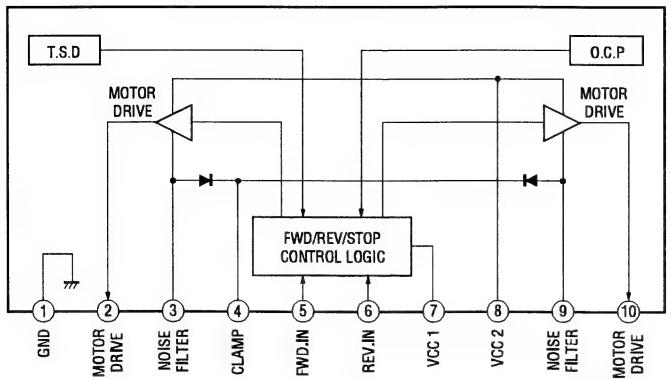
**- MAIN Section -**  
**IC570 LA5620**



**IC603 M62016L**

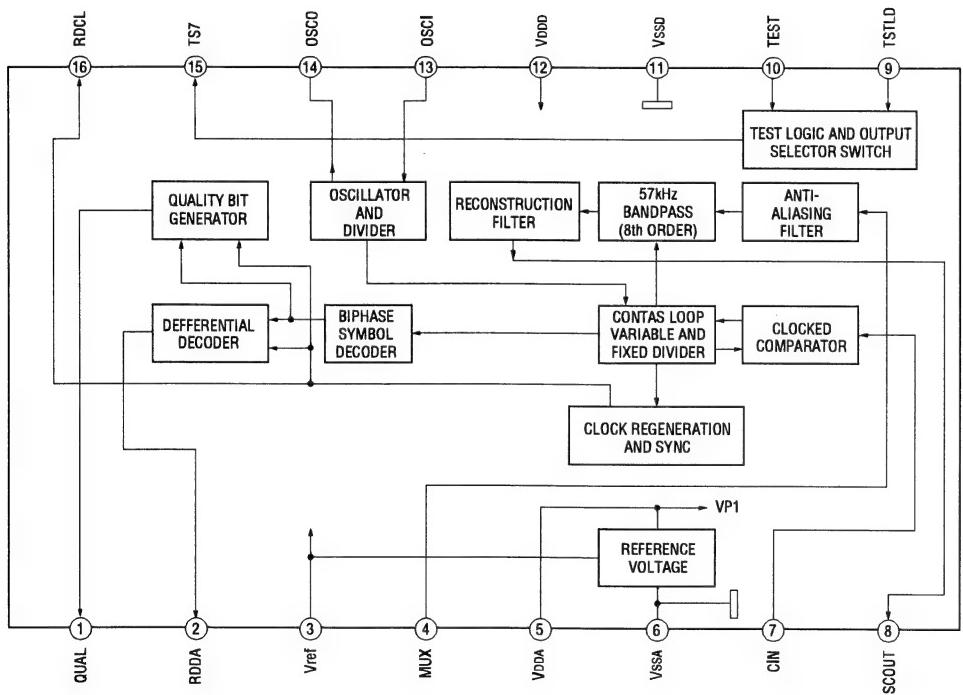


**IC801 LB1641**



**- AUDIO Section -**

**IC1500 BU1922F**



## 6-12. IC PIN FUNCTION DESCRIPTION

### • BD (MD) BOARD IC101 CXA2523AR (RF AMPLIFIER)

Pin No.	Pin Name	I/O	Function
1	I	I	I-V converted RF signal I input from the optical pick-up block detector
2	J	I	I-V converted RF signal J input from the optical pick-up block detector
3	VC	O	Middle point voltage (+1.65V) generation output terminal
4 to 9	A to F	I	Signal input from the optical pick-up detector
10	PD	I	Light amount monitor input terminal
11	APC	O	Laser amplifier output terminal to the automatic power control circuit
12	APCREF	I	Reference voltage input terminal for setting laser power
13	GND	—	Ground terminal
14	TEMPI	I	Connected to the temperature sensor
15	TEMPR	O	Output terminal for a temperature sensor reference voltage
16	SWDT	I	Writing serial data input from the CXD2652AR (IC121)
17	SCLK	I	Serial clock signal input from the CXD2652AR (IC121)
18	XLAT	I	Serial latch signal input from the CXD2652AR (IC121)
19	XSTBY	I	Standby signal input terminal “L”: standby (fixed at “H” in this set)
20	F0CNT	I	Center frequency control voltage input terminal of internal circuit (BPF22, BPF3T, EQ) input from the CXD2652AR (IC121)
21	VREF	O	Reference voltage output terminal Not used (open)
22	EQADJ	I	Center frequency setting terminal for the internal circuit (EQ)
23	3TADJ	I	Center frequency setting terminal for the internal circuit (BPF3T)
24	VCC	—	Power supply terminal (+3.3V)
25	WBLADJ	I	Center frequency setting terminal for the internal circuit (BPF22)
26	TE	O	Tracking error signal output to the CXD2652AR (IC121)
27	CSLED	I	Connected to the external capacitor for low-pass filter of the sled error signal
28	SE	O	Sled error signal output to the CXD2652AR (IC121)
29	ADFM	O	FM signal output of the ADIP
30	ADIN	I	Receives a ADIP FM signal in AC coupling
31	ADAGC	I	Connected to the external capacitor for ADIP AGC
32	ADFG	O	ADIP duplex signal (22.05 kHz ± 1 kHz) output to the CXD2652AR (IC121)
33	AUX	O	Auxiliary signal (I3 signal/temperature signal) output to the CXD2652AR (IC121)
34	FE	O	Focus error signal output to the CXD2652AR (IC121)
35	ABCD	O	Light amount signal (ABCD) output to the CXD2652AR (IC121)
36	BOTM	O	Light amount signal (RF/ABCD) bottom hold output to the CXD2652AR (IC121)
37	PEAK	O	Light amount signal (RF/ABCD) peak hold output to the CXD2652AR (IC121)
38	RF	O	Playback EFM RF signal output to the CXD2652AR (IC121)
39	RFAGC	I	Connected to the external capacitor for RF auto gain control circuit
40	AGCI	I	Receives a RF signal in AC coupling
41	COMPO	O	User comparator output terminal Not used (open)
42	COMPP	I	User comparator input terminal Not used (fixed at “L”)
43	ADD	I	Connected to the external capacitor for cutting the low band of the ADIP amplifier
44	OPO	O	User operational amplifier output terminal Not used (open)
45	OPN	I	User operational amplifier inversion input terminal Not used (fixed at “L”)
46	RFO	O	RF signal output terminal
47	MORFI	I	Receives a MO RF signal in AC coupling
48	MORFO	O	MO RF signal output terminal

• BD (MD) BOARD IC121 CXD2652AR  
(DIGITAL SIGNAL PROCESSOR, DIGITAL SERVO PROCESSOR, EFM/ACIRC ENCODER/DECODER, SHOCK PROOF MEMORY CONTROLLER, ATRAC ENCODER/DECODER, 2M BIT D-RAM)

Pin No.	Pin Name	I/O	Function
1	MNT0 (FOK)	O	Focus OK signal output to the MD system controller (IC316) "H" is output when focus is on
2	MNT1 (SHCK)	O	Track jump detection signal output to the MD system controller (IC316)
3	MNT2 (XBUSY)	O	Monitor 2 signal output to the MD system controller (IC316)
4	MNT3 (SLOC)	O	Monitor 3 signal output to the MD system controller (IC316)
5	SWDT	I	Writing data signal input from the MD system controller (IC316)
6	SCLK	I	Serial clock signal input from the MD system controller (IC316)
7	XLAT	I	Serial latch signal input from the MD system controller (IC316)
8	SRDT	O (3)	Reading data signal output to the MD system controller (IC316)
9	SENS	O (3)	Internal status (SENSE) output to the MD system controller (IC316)
10	XRST	I	Reset signal input from the MD system controller (IC316) "L": reset
11	SQSY	O	Subcode Q sync (SCOR) output to the MD system controller (IC316) "L" is output every 13.3 msec Almost all, "H" is output
12	DQSY	O	Digital In U-bit CD format subcode Q sync (SCOR) output to the MD system controller (IC316) "L" is output every 13.3 msec Almost all, "H" is output
13	RECP	I	Laser power selection signal input from the MD system controller (IC316) "H": recording mode, "L": playback mode
14	XINT	O	Interrupt status output to the MD system controller (IC316)
15	TX	I	Recording data output enable signal input from the MD system controller (IC316) Writing data transmission timing input (Also serves as the magnetic head on/off output)
16	OSCI	I	System clock signal (512Fs=22.5792 MHz) input terminal
17	OSCO	O	System clock signal (512Fs=22.5792 MHz) output terminal
18	XTSL	I	Input terminal for the system clock frequency setting "L": 45.1584 MHz, "H": 22.5792 MHz (fixed at "H" in this set)
19	RVDD	—	Power supply terminal (+3.3V) (digital system)
20	RVSS	—	Ground terminal (digital system)
21	DIN	I	Digital audio signal input terminal when recording mode (for optical in)
22	DOUT	O	Digital audio signal output terminal when playback mode (for optical out) Not used
23	ADDT	I	Recording data input from the A/D, D/A converter (IC201)
24	DADT	O	Playback data output to the A/D, D/A converter (IC201)
25	LRCK	O	L/R sampling clock signal (44.1 kHz) output to the A/D, D/A converter (IC201)
26	XBCK	O	Bit clock signal (2.8224 MHz) output to the A/D, D/A converter (IC201)
27	FS256	O	Clock signal (11.2896 MHz) output to the A/D, D/A converter (IC201)
28	DVDD	—	Power supply terminal (+3.3V) (digital system)
29	A03	O	Address signal output to the external D-RAM (IC124)
30	A02	O	
31	A01	O	
32	A00	O	
33	A10	O	
34	A04	O	
35	A05	O	
36	A06	O	
37	A07	O	
38	A08	O	
39	A11	O	

\* I (A) for analog input, O (3) for 3-state output, and O (A) for analog output in the column I/O.

Pin No.	Pin Name	I/O	Function
40	DVSS	—	Ground terminal (digital system)
41	XOE	O	Output enable signal output to the external D-RAM (IC124)
42	XCAS	O	Column address strobe signal output to the external D-RAM (IC124)
43	A09	O	Address signal output to the external D-RAM (IC124)
44	XRAS	O	Row address strobe signal output to the external D-RAM (IC124)
45	XWE	O	Write enable signal output to the external D-RAM (IC124)
46	D1	I/O	Two-way data bus for the external D-RAM (IC124)
47	D0	I/O	
48	D2	I/O	
49	D3	I/O	
50	MVCI	I	Digital in PLL oscillation input from the external VCO Not used (fixed at "L")
51	ASYO	O	Playback EFM full-swing output
52	ASYI	I (A)	Playback EFM asymmetry comparator voltage input
53	AVDD	—	Power supply terminal (+3.3V) (analog system)
54	BIAS	I (A)	Playback EFM asymmetry circuit constant current input
55	RFI	I (A)	Playback EFM RF signal input from the CXA2523AR (IC101)
56	AVSS	—	Ground terminal (analog system)
57	PDO	O (3)	Phase comparison output for clock playback analog PLL of the playback EFM Not used (open)
58	PCO	O (3)	Phase comparison output for master clock of the recording/playback EFM master PLL
59	FILI	I (A)	Filter input for master clock of the recording/playback master PLL
60	FILO	O (A)	Filter output for master clock of the recording/playback master PLL
61	CLTV	I (A)	Internal VCO control voltage input of the recording/playback master PLL
62	PEAK	I (A)	Light amount signal (RF/ABCD) peak hold input from the CXA2523AR (IC101)
63	BOTM	I (A)	Light amount signal (RF/ABCD) bottom hold input from the CXA2523AR (IC101)
64	ABCD	I (A)	Light amount signal (ABCD) input from the CXA2523AR (IC101)
65	FE	I (A)	Focus error signal input from the CXA2523AR (IC101)
66	AUX1	I (A)	Auxiliary signal (I3 signal/temperature signal) input from the CXA2523AR (IC101)
67	VC	I (A)	Middle point voltage (+1.65V) input from the CXA2523AR (IC101)
68	ADIO	O (A)	Monitor output of the A/D converter input signal Not used (open)
69	AVDD	—	Power supply terminal (+3.3V) (analog system)
70	ADRT	I (A)	A/D converter operational range upper limit voltage input terminal (fixed at "H" in this set)
71	ADRB	I (A)	A/D converter operational range lower limit voltage input terminal (fixed at "L" in this set)
72	AVSS	—	Ground terminal (analog system)
73	SE	I (A)	Sled error signal input from the CXA2523AR (IC101)
74	TE	I (A)	Tracking error signal input from the CXA2523AR (IC101)
75	AUX2	I (A)	Auxiliary signal input terminal Not used (fixed at "H")
76	DCHG	I (A)	Connected to the +3.3V power supply
77	APC	I (A)	Error signal input for the laser automatic power control Not used (fixed at "L")
78	ADFG	I	ADIP duplex FM signal (22.05 kHz ± 1 kHz) input from the CXA2523AR (IC101)
79	F0CNT	O	Filter f0 control signal output to the CXA2523AR (IC101)
80	XLRF	O	Serial latch signal output to the CXA2523AR (IC101)
81	CKRF	O	Serial clock signal output to the CXA2523AR (IC101)
82	DTRF	O	Writing data output to the CXA2523AR (IC101)

\* I (A) for analog input, O (3) for 3-state output, and O (A) for analog output in the column I/O.

Pin No.	Pin Name	I/O	Function
83	APCREF	O	Control signal output to the reference voltage generator circuit for the laser automatic power control
84	LDDR	O	PWM signal output for the laser automatic power control Not used (open)
85	TRDR	O	Tracking servo drive PWM signal (-) output to the BH6511FS (IC152)
86	TFDR	O	Tracking servo drive PWM signal (+) output to the BH6511FS (IC152)
87	DVDD	—	Power supply terminal (+3.3V) (digital system)
88	FFDR	O	Focus servo drive PWM signal (+) output to the BH6511FS (IC152)
89	FRDR	O	Focus servo drive PWM signal (-) output to the BH6511FS (IC152)
90	FS4	O	Clock signal (176.4 kHz) output terminal (X'tal system) Not used (open)
91	SRDR	O	Sled servo drive PWM signal (-) output to the BH6511FS (IC152)
92	SFDR	O	Sled servo drive PWM signal (+) output to the BH6511FS (IC152)
93	SPRD	O	Spindle servo drive PWM signal (-) output to the BH6511FS (IC152)
94	SPFD	O	Spindle servo drive PWM signal (+) output to the BH6511FS (IC152)
95	FGIN	I	Input terminal for the test (fixed at "L")
96	TEST1	I	
97	TEST2	I	
98	TEST3	I	
99	DVSS	—	Ground terminal (digital system)
100	EFMO	O	EFM signal output terminal when recording mode

• BD (MD) BOARD IC316 M30610MC-109FP (MD SYSTEM CONTROL)

Pin No.	Pin Name	I/O	Function
1,2	(JOG0, JOG1)	I	Encoder switch signal input terminal Not used (fixed at "H")
3,4	DAOUT1, DAOUT2	O	Not used (fixed at "L")
5	SQSY	I	Subcode Q sync (SCOR) input from the CXD2652AR (IC121)
6	REMCN	I	Remote control signal input
7	EMP	O	De-emphasis control signal output to the AK4520 (IC201)
8	BYTE	I	External data bus line byte select signal input terminal "L":16bit "H": 8bit (fixed at "L")
9	CNVSS	I	Processor mode select signal input terminal (fixed at "L")
10	XIN-T	I	Sub system clock input tarminal Not used (fixed at "L")
11	(XOUT-T)	O	Sub sytem clock output tarminal Not used (fixed at "L")
12	SYSTEM-RST	I	MD reset signal input from the M62016 (IC603)
13	XOUT	O	Main system clock signal output terminal
14	GND	—	Ground terminal
15	XIN	I	Main sytem clock signal input terminal
16	+3V	—	Power supply terminal (+3.3V)
17	NMI	—	Connecting to power supply
18	AMUTE	—	Not used (fixed at "L")
19	PWR-DWN	O	Power down detect signal output to the LA5620 (IC570)
20	DQSY	I	Digital in U-bit CD format subcode Q sync (SCOR) input from theCXD2652SAR (IC121)
21	STB	I	Stand-by signal input terminal Not used (fixed at "L")
22	DA-RST	I	D/A converter reset signal input terminal Not used (fixed at "L")
23	XINT	I	Interrupt status input from the CXD2652AR (IC121)
24	DA-EN	O	D/A converter enable signal output to the AK4520 (IC201)
25	AD-EN	O	A/D converter enable signal output to the AK4520 (IC201)
26	MEC-BUSY	O	Mecha-busy signal output to the master control (IC601)
27	FLCS	O	Display clear signal output terminal Not used (fixed at "L")
28	FLCLK	O	Display data clock signal output terminal Not used (fixed at "L")
29	——	—	Not used (fixed at "L")
30	FLDATA	O	Display data signal output terminal Not used (fixed at "L")
31	TXD	O	MD control data signal output to the master control (IC601)
32	RXD	I	MD control data signal input to the master control (IC601)
33	CLK	I	MD control data clock signal input to the master control (IC601)
34	MAS-BUSY	I	Master-busy signal input from the master control (IC601)
35	SWDT	O	Writing data signal output to the CXD2652AR (IC121)
36	SRDT	I	Reading data signal input from the CXD2652AR (IC121)
37	SCLK	O	Serial clock signal output to the CXD2652AR (IC121)
38	XLAT	O	Serial latch signal output to the CXD2652AR (IC121)
39	——	O	Clock signal output terminal Not used (fixed at "L")
40	DIG-RST	I	Reset signal output enable signal output to the CXD2652AR (IC121)
41	SENS	I	Status (SENSE) input from the CXD2652AR (IC121)
42	SCTX	O	Recording data output enable signal output to the CXD2652AR (IC121)
43	XINT	O	Not used (fixed at "L")
44	WRPWR	O	Laser power selection signal output to the CXD2652AR (IC121)
45	MNT3	I	Monitor 3 signal input from the CXD2652AR (IC121)
46	MNT2	I	Monitor 2 signal input from the CXD2652AR (IC121)
47	MNT1	I	Track jump detection signal input from the CXD2652AR (IC121)
48	MNTO	I	Focus OK signal input from the CXD2652AR (IC121)
49	LDON	O	Laser diode ON signal output terminal

Pin No.	Pin Name	I/O	Function
50	MOD	O	HF module ON signal output terminal
51	LDIN	O	MD loading-in signal output to LB1830M (IC153)
52	LDOUT	O	MD loading-out signal output to LAB1830M (IC153)
53	LD-LOW	O	Loading motor voltage control signal output to the loading motor driver
54	PROTECT	I	MD PROTECT switch (S683) detect signal input terminal
55	REFLECT	I	MD REFLECT switch (S682) detect signal input terminal
56	PACK-IN	I	Not used
57	PACK-OUT	I	MD PACK OUT switch (S686) detect signal input terminal
58	CHUCK-IN	I	MD CHUCKING IN switch (S685) detect signal input terminal
59	LIMIT-IN	I	MD LIMIT IN switch (S681) detect signal input terminal
60	REC. P	I	MD REC POSITION switch (S688) detect signal input terminal
61	PB. P	I	MD PB POSITION switch (S687) detect signal input terminal
62	+5V	—	Power supply (+5V)
63	—	—	Not used (fixed at "L")
64	GND	—	Ground terminal
65 to 72	—	—	Connect terminal 65 to 72 Not used (fixed at "L")
73 to 78	—	—	Not used (fixed at "L")
79	SDA	I/O	Tow-way data bus for the EEPROM (IC171)
80	SCL	O	Clock signal output to the EEPROM (IC171)
81, 82	—	—	Not used (fixed at "L")
83	POWER	—	Conenct terminal 83 to 85 Not used (fixed at "L")
84, 85	—	—	
86, 87	—	—	Not used (fixed at "L")
88 to 90	—	—	Connect terminal 88 to 90 Not used (fixed at "L")
91 to 93	KEY0, KEY1, KEY2	—	Connect terminal 91 to 93 Not used (fixed at "H")
94	—	—	Not used (fixed at "L")
95	SOURCE	—	Not used (fixed at "L")
96	AVSS	—	Ground terminal
97	—	—	Not used (fixed at "L")
98	VREF5V	—	Power supply (+5V)
99	3.3V	—	Power supply (+3.3V)
100	—	—	Not used (fixed at "L")

• MAIN BOARD (1/3) IC601 μPD78078GF-062-3BA (MASTER CONTROL)

Pin No.	Pin Name	I/O	Function
1 to 3	VER	I	Destination setting terminal
4	VER	I	Destination setting terminal Not used (open)
5 to 7	(NC)	—	Not used
8	(NC)	—	Not used (open)
9	IC	—	Connecting to ground
10	X2	O	Main system clock output terminal (5 MHz)
11	X1	I	Main system clock input terminal (5 MHz)
12	VDD	—	Power supply terminal (+5V)
13	XT2	O	Sub system clock output terminal (32 kHz)
14	XT1	I	Sub system clock input terminal (32 kHz)
15	RESET	I	System reset signal input from the reset signal generator (IC602)
16	AU-BUS IN	I	AU-BUS signal input terminal
17	AU-BUS OUT	O	AU-BUS signal output terminal
18	ENC/A	I	Encoder volume signal A input from the master volume (S901)
19	ENC/B	I	Encoder volume signal B input from the master volume (S901)
20	RDS/CLK	I	RDS clock signal input from the RDS demodulator (IC1500)
21	RDS/DATA	I	RDS data signal input from the RDS demodulator (IC1500)
22	SCOR (BD)	I	Sub-code sync S0, S1 detect signal input from the digital signal processor (IC103)
23	AVDD	—	Power supply terminal (+5V) (for A/D converter)
24	AVREF0	—	Reference voltage input terminal (+5V) (for A/D converter)
25	KEY0	I	Key input terminal (A/D input) POWER key (S902) input
26	KEY1	I	Key input terminal (A/D input) ■ (CD), ▶II (CD), ▲ (CD), ■ (MD), ▶II (MD), ▲ (MD) keys (S903 to S908) input
27	KEY2	I	Key input terminal (A/D input) FUNCTION, ▶▶▶I +, TUNER/BAND, I◀◀◀I -, ● REC, CD-MD SYNC, REPEAT STEREO/MONO, PLAY MODE TUNING MODE (S909 to S916) input
28 to 30	(NC)	—	Not used
31	RTS (TO MD. CTS) MASTER BUSY	O	Master-busy signal output to the MD system control (IC316)
32	MD-POWER	O	MD power on/off signal output to the MD power regulator (IC570)
33	AVSS	—	Ground terminal (for A/D converter)
34	POWER ON	I	System power on signal input terminal
35	MD OEM/REST	O	MD reset signal output terminal
36	AVREF1	I	Reference voltage input terminal (+5V) (for A/D converter)
37	RXD (TO MD. TXD) RXD	I	MD control data signal input from the MD system control (IC316)
38	TXD (TO MD. RXD) TXD	O	MD control data signal output to the MD system control (IC316)
39	MD-CLK	O	MD control data clock signal output to the MD system control (IC316)
40	VSS	—	Ground terminal
41	CTS (TO MD. RTS) MECHA BUSY	I	Mecha-busy signal input from the MD system control (IC316)
42	FL/DRIV DATA	O	Display data signal output to the fluorescent indicator drive (IC901)
43	FL/DRIV CLOCK	O	Display data clock signal output to the fluorescent indicator drive (IC901)
44	FL/DRIV CS	O	Display clear signal output to the fluorescent indicator drive (IC901) "L": data output
45	FL/DRIVE RESET	O	Display reset signal output to the fluorescent indicator drive (IC901) "L": reset
46	BD SUBQ	I	Sub-code Q data signal input from the CXD2507AQ (IC103)
47	(NC)	—	Not used (open)
48	BD SQCLK	O	Sub-code Q data reading clock signal output to the CXD2507AQ (IC103)
49	BD CLOCK	O	Serial data clock signal output to the CXD2507AQ (IC103)

Pin No.	Pin Name	I/O	Function
50	BD DATA	O	Serial data output to the CXD2507AQ (IC103)
51	XLT	O	Serial data latch pulse signal output to the CXD2507AQ (IC103)
52	PRGL (DF. LAT)	O	Serial data latch pulse signal output to the PCM1710U (IC104)
53	SENCE	I	Internal status (SENSE) signal input from the CXD2507AQ (IC103)
54	ADJ	I	Test mode input terminal "H": normal (fixed at "H" in this set)
55	IN-SW	I	Disc tray close complete signal input terminal "L": Completed
56	OUT-SW	I	Disc tray open complete signal input terminal "L": Completed
57	LOAD-OUT	O	Disc tray loading out signal output to the motor driver (IC801)
58	LOAD-IN	O	Disc tray loading in signal output to the motor driver (IC801)
59	FOCUS-SW	O	Focus gain selection switch signal output terminal "L": normal "H": down
60	BD-REST	O	BD block reset signal output terminal "L": reset
61	CD-POWER	O	CD power on/off signal output to the CD power regulator (Q561, 562)
62	ST-POWER	O	ST power on/off signal output terminal Not used (open)
63	D. IN. SELECT	O	Optical/CD select signal output terminal "H": optical "L": CD
64, 65	(NC)	—	Not used
66	LED-CD. DISC	O	CD INDICATOR LED (D908) drive signal output terminal
67	LED-MD. DISC	O	MD INDICATOR LED (D905) drive signal output terminal
68	LED-MD. REC	O	● LED (D904) drive signal output terminal
69	LED-CD. PAUSE	O	■ (CD) LED (D907) drive signal output terminal
70	LED-CD. PLAY	O	▶ (CD) LED (D906) drive signal output terminal
71	VSS	—	Ground terminal
72	LED-MD. PAUSE	O	■ (MD) LED (D903) drive signal output terminal
73	LED-MD. PLAY	O	▶ (MD) LED (D902) drive signal output terminal
74	DBFB	O	DBFB on/off signal output terminal "L": on
75	RECOUT. MUTE	O	Rec mute (tape) signal output terminal "L": mute
76	MUTE	O	Mute signal output terminal
77	ATT/6DB	O	Tape input level attenuate signal output terminal
78	SOUND/IC DATA	O	Graphic equalizer data signal output to the M62428FP (IC701)
79	SOUND/IC CLOCK	O	Graphic equalizer data clock signal output to the M62428FP (IC701)
80	SOUND/IC LAT	O	Graphic equalizer data latch pulse signal output to the M62428FP (IC701)
81	(GND)	—	Ground terminal
82	ST STEREO	I	Stereo detection signal input from the tuner
83	ST TUNED	I	Tuned detection signal input from the tuner
84	ST DATA-IN	I	Data signal input from the tuner
85	ST DATA-OUT	O	Data signal output to the tuner
86	ST CLOCK	O	Data transfer clock signal output to the tuner
87	ST CE	O	Chip enable signal output to the tuner
88	ST MUTE	O	Mute signal output to the tuner
89	FM/AM SELECT	O	FM/AM select signal output Not used (open)
90	SIRCUS	I	Remote control signal input from the remote control receiver (IC902)
91	(EWS STBY OK)	—	Not used (open)
92	(EWS NOW)	—	Connecting to ground
93	FAN SPEED	O	Fan speed control signal output terminal Not used (open)
94	FAN STOP	O	Fan on/off signal output terminal Not used (open)
95 to 99	(NC)	—	Connecting to ground
100	AC-CUT	I	System reset signal input from the reset signal generator (IC602)

## SECTION 7 EXPLODED VIEWS

### NOTE:

- XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts  
Example:  
KNOB, BALANCE (WHITE) . . . (RED)

↑  
Parts Color Cabinet's Color

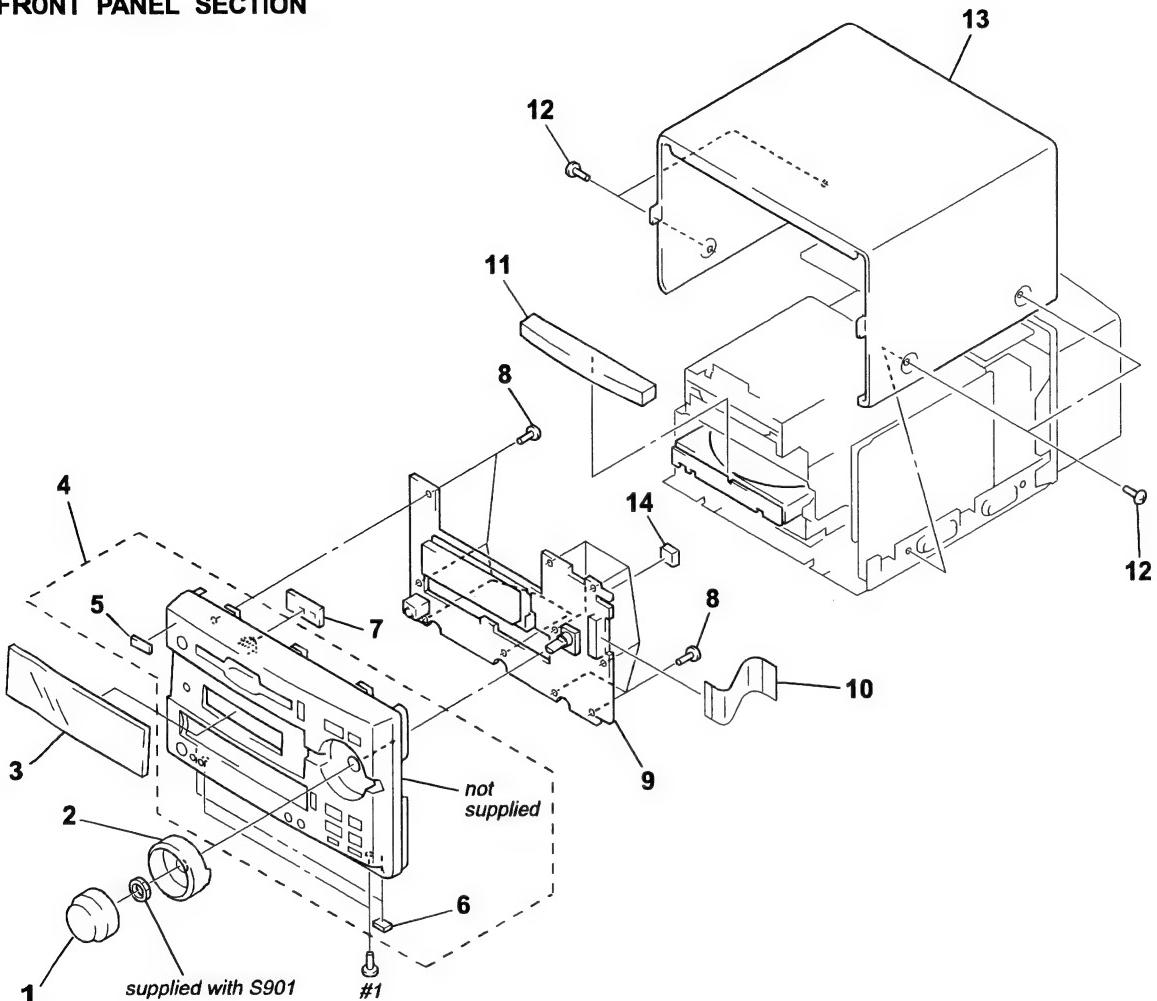
### Abbreviation

AED: North European MY : Malaysia  
G : German SP : Singapore  
HK : Hong Kong

- Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list is given in the last of the electrical parts list.

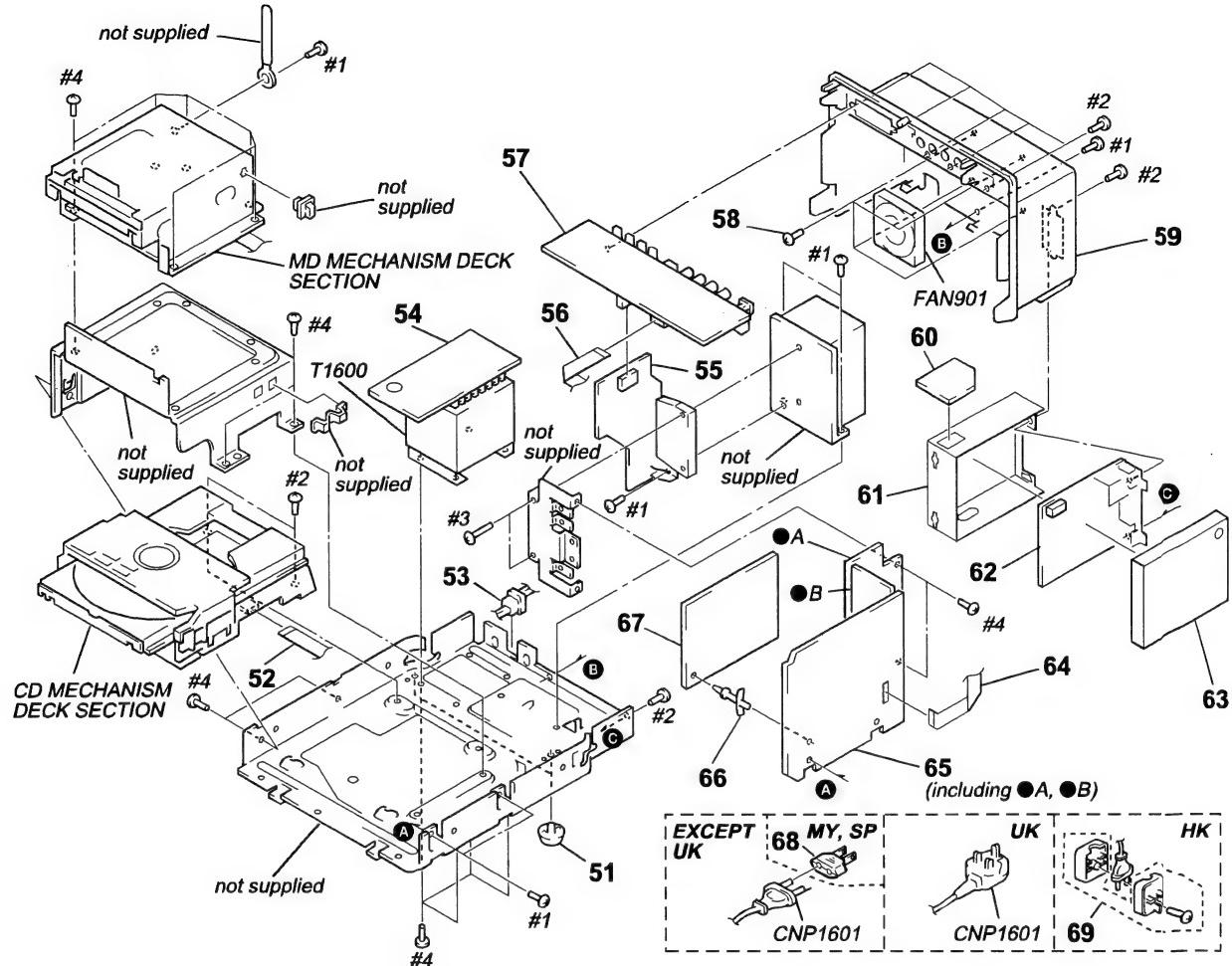
The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety.  
Replace only with part number specified.

### (1) FRONT PANEL SECTION



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
1	X-4949-008-1	KNOB (VOL) ASSY		* 7	1-666-899-11	MD-LED BOARD	
2	4-993-862-01	RING (VOL)		8	4-951-620-01	SCREW (2.6X8), +BVTP	
3	4-993-863-01	WINDOW (M3) (MY, SP, HK)		* 9	A-4403-402-A	PANEL BOARD, COMPLETE	
3	4-993-863-11	WINDOW (M3) (AEP, UK, G, AED)		10	1-782-793-11	WIRE (FLAT TYPE) (23 CORE)	
4	X-4948-965-1	PANEL ASSY, FRONT		11	4-993-851-01	PANEL (CD), LOADING	
5	4-962-708-01	EMBLEM (4-A), SONY		12	3-363-099-11	SCREW (CASE 3 TP2)	
* 6	4-930-336-71	FOOT (FELT)		* 13	4-993-842-01	CASE	
				14	4-993-845-01	CUSHION	

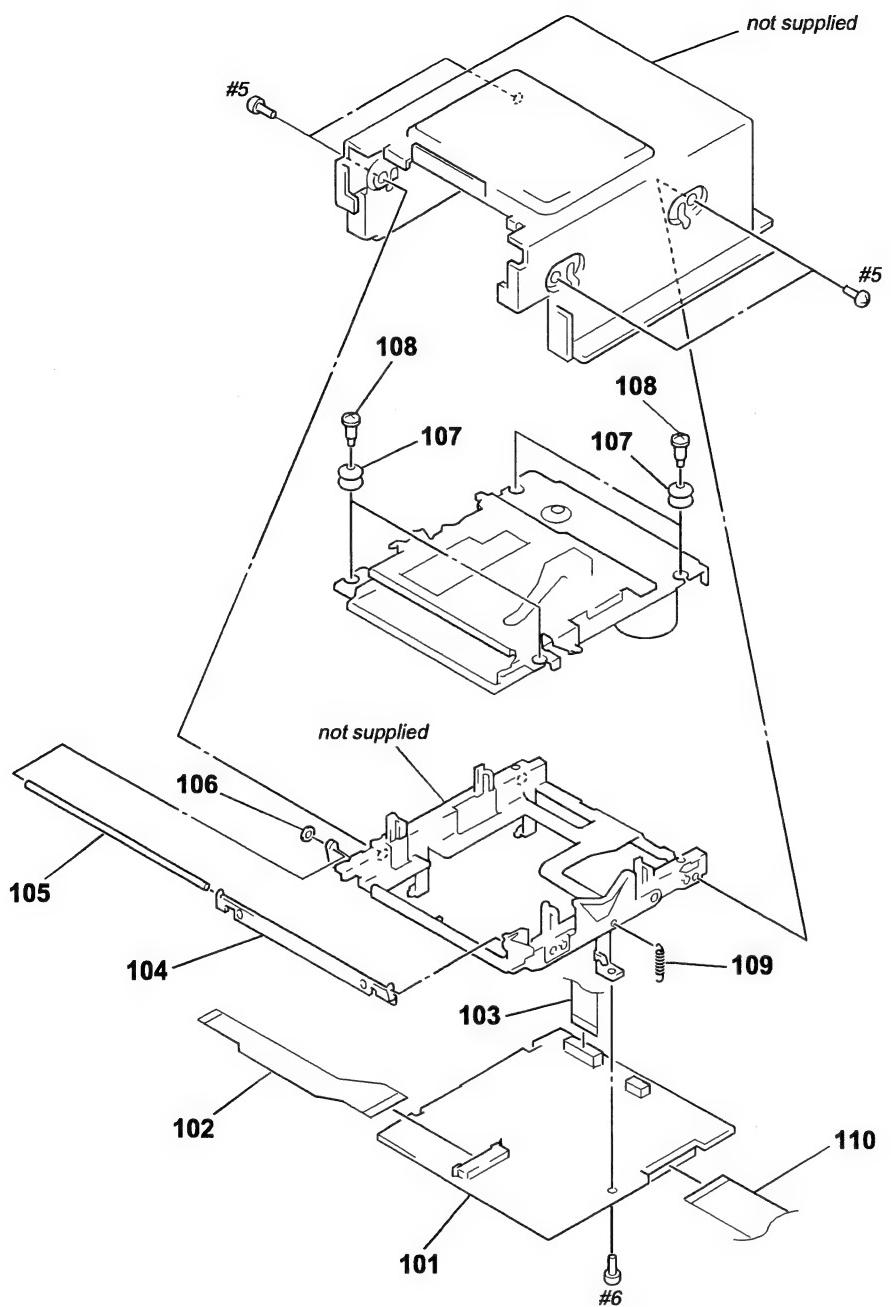
## (2) CHASSIS SECTION



The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.

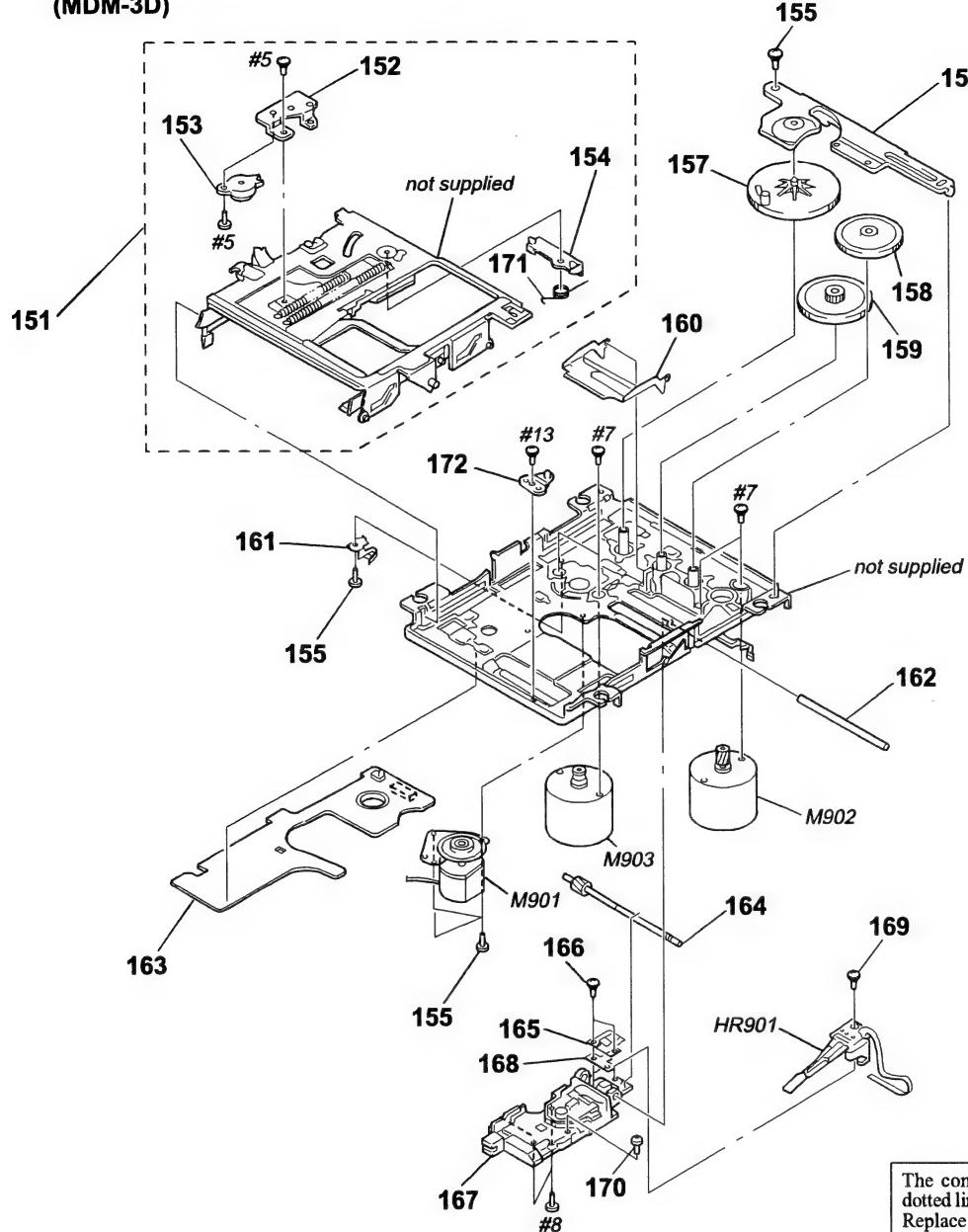
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
51	4-993-867-01	FOOT		62	1-693-387-21	TUNER (FM/MW/LW) (AEP, UK, G, AED)	
52	1-776-241-11	WIRE (FLAT TYPE) (19 CORE)		* 63	4-984-204-11	PLATE (ST-B), SHIELD	
* 53	3-703-244-00	BUSHING (2104), CORD		64	1-773-004-11	WIRE (FLAT TYPE) (15 CORE): BEN (10 cm)	
* 54	1-666-904-11	TRANSFORMER BOARD		* 65	A-4403-408-A	MAIN BOARD, COMPLETE (AEP, UK, G, AED)	
* 55	A-4403-410-A	POWER AMP BOARD, COMPLETE (AEP, UK, G, AED)		* 65	A-4403-415-A	MAIN BOARD, COMPLETE (MY, SP, HK)	
* 55	A-4403-417-A	POWER AMP BOARD, COMPLETE (MY, SP, HK)		* 66	4-924-098-91	HOLDER, PC BOARD	
56	1-777-353-11	WIRE (FLAT TYPE) (15 CORE) (10 cm)		* 67	A-4403-412-A	AUDIO BOARD, COMPLETE (AEP, UK, G, AED)	
* 57	A-4403-414-A	JACK BOARD, COMPLETE (AEP, UK, G, AED)		* 67	A-4403-419-A	AUDIO BOARD, COMPLETE (MY, SP, HK)	
* 57	A-4403-421-A	JACK BOARD, COMPLETE (MY, SP, HK)		$\Delta$ 68	1-569-008-11	ADAPTOR, CONVERSION 2P (MY, SP)	
58	4-985-672-01	SCREW (+PTPWHM2.6), FLOATING		$\Delta$ 69	1-770-019-11	ADAPTOR, CONVERSION PLUG 3P (HK)	
* 59	4-993-849-11	PANEL, BACK (AEP, UK, G, AED)		$\Delta$ CNP1601 1-751-520-11		CORD, POWER (UK)	
* 59	4-993-849-21	PANEL, BACK (MY, SP, HK)		$\Delta$ CNP1601 1-769-744-11		CORD, POWER (EXCEPT UK)	
* 60	1-666-905-11	ST TRANSLATION BOARD		FAN901 1-698-997-11		FAN, DC	
* 61	4-984-203-21	PLATE (ST-A), SHIELD		$\Delta$ T1600 1-431-497-11		TRANSFORMER, POWER (AEP, UK, G, AED)	
62	1-233-546-21	ENCAPSULATED COMPONENT (MY, SP, HK)		$\Delta$ T1600 1-431-498-11		TRANSFORMER, POWER (MY, SP, HK)	

**(3) MD MECHANISM DECK SECTION-1  
(MDM-3D)**



<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>	<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>
* 101	A-4699-808-A	BD (MD) BOARD, COMPLETE		106	4-986-959-01	WASHER, STOPPER	
102	1-660-966-11	OP RELAY FLEXIBLE BOARD		107	4-987-327-01	INSULATOR	
103	1-782-683-11	WIRE (FLAT TYPE) (14 CORE)		108	4-628-167-01	SCREW, STEP	
104	X-4948-722-1	SHUTTER ASSY		109	4-987-910-01	SPRING (O/C), TENSION	
105	4-987-736-01	SHAFT (SHUTTER)		110	1-783-113-11	WIRE (FLAT TYPE) (25 CORE)	

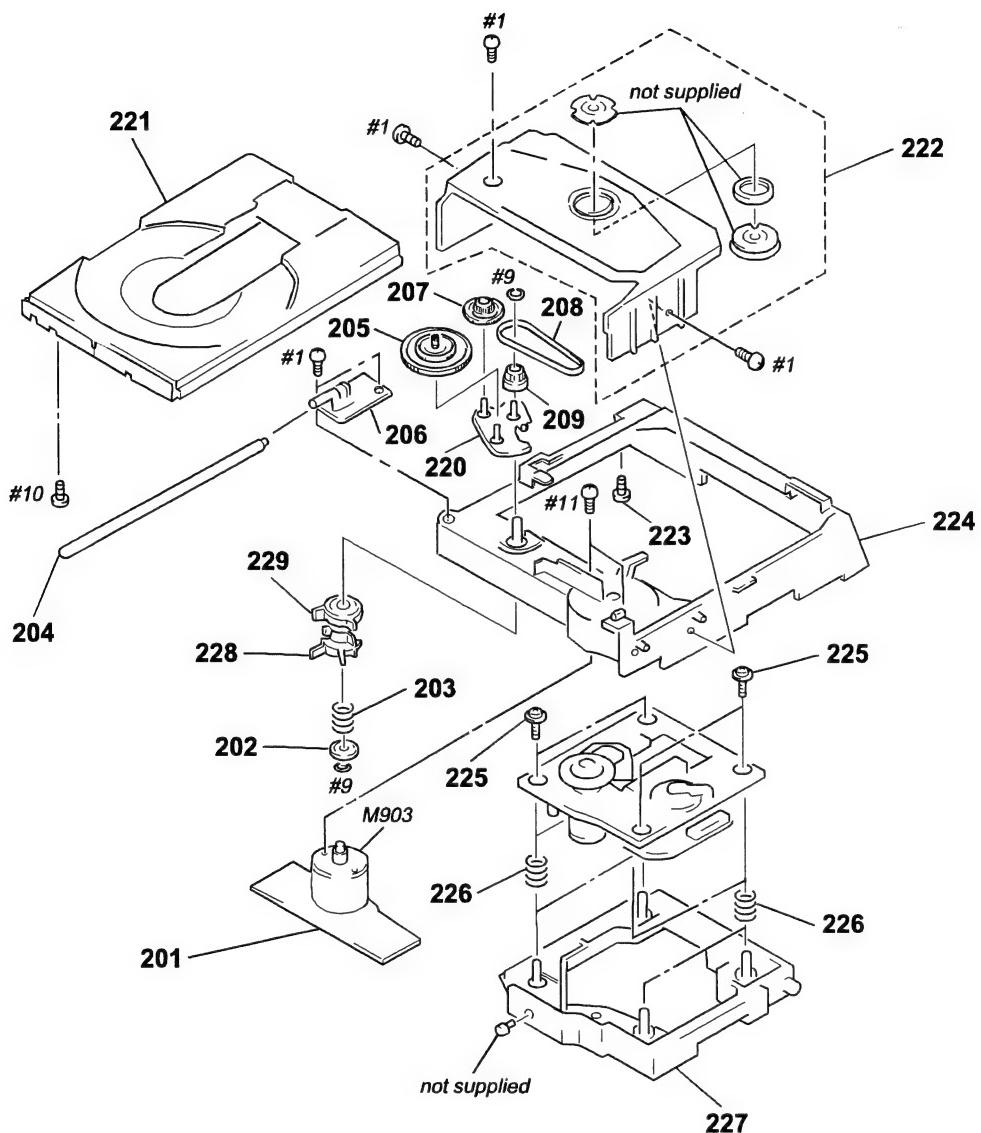
**(4) MD MECHANISM DECK SECTION-2  
(MDM-3D)**



The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.

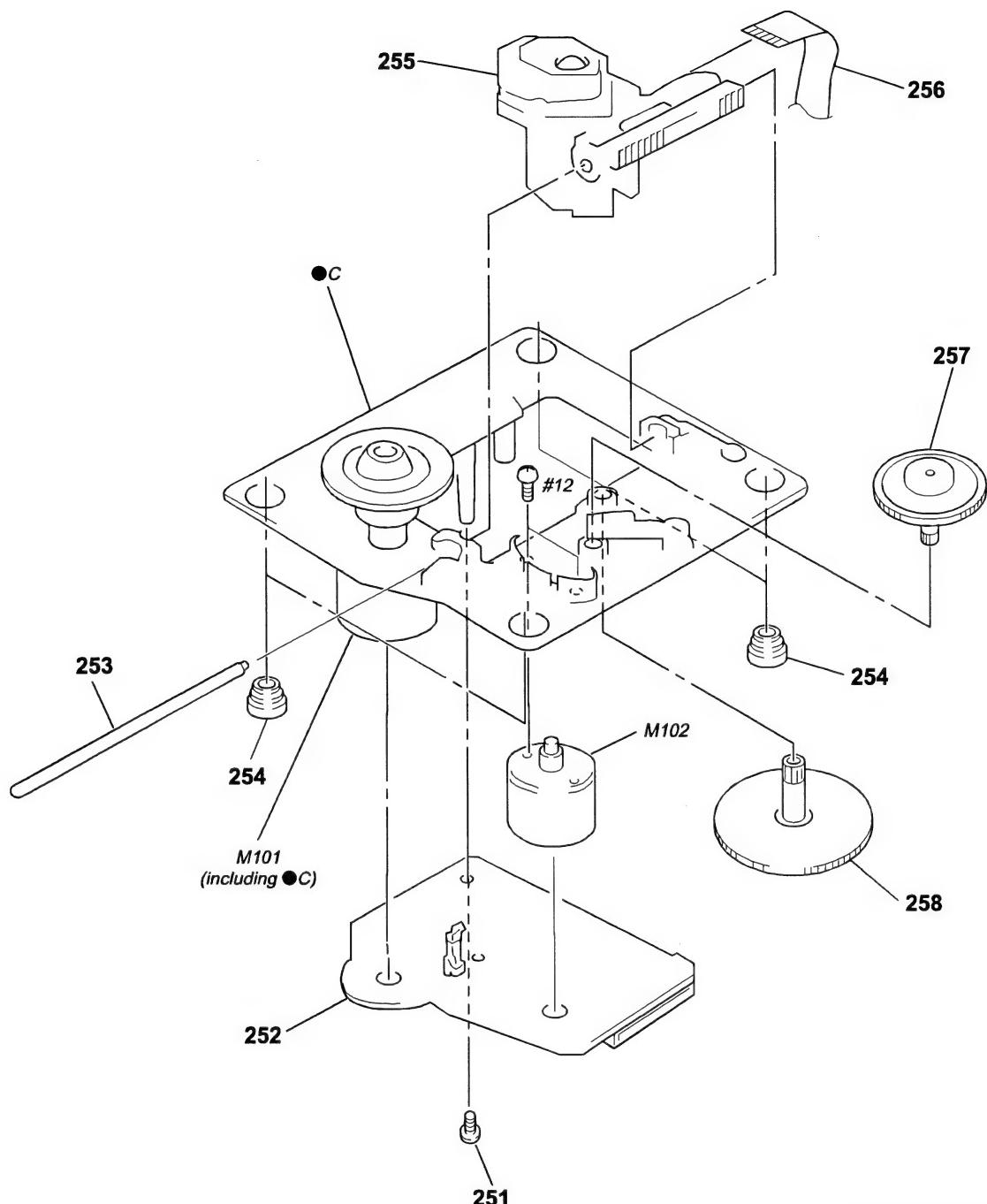
<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>	<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>
151	A-4672-138-A	SLIDER COMPLETE ASSY		164	A-3304-200-A	SCREW ASSY, LEAD	
* 152	4-983-439-01	BRACKET (DAMPER)		165	4-963-914-02	RACK (INSERTER)	
153	3-953-235-01	DAMPER, OIL		166	3-366-890-11	SCREW (M1.4)	
* 154	4-983-437-01	SLIDER (CAM)		△ 167	8-583-028-02	OPTICAL PICK-UP KMS-260A/J1N	
155	3-342-375-11	SCREW (M1.7X1.4), SPECIAL		168	4-987-061-01	SPACER (RACK)	
156	4-979-890-13	RETAINER (GEAR)		169	4-988-560-01	SCREW (+P 1.7X6)	
157	4-979-898-01	GEAR (LB)		170	4-955-841-11	SCREW	
158	4-979-899-01	GEAR (LC)		171	4-979-914-01	SPRING (CLV), TORSION	
159	4-979-897-01	GEAR (LA)		* 172	4-983-511-02	PIN (OUTSERT)	
160	4-979-885-01	LEVER (HEAD UP)		HR901	1-500-396-11	HEAD, OVER LIGHT (RF325-74A)	
161	4-979-906-11	SPRING (LEAD SCREW)		M901	A-4672-135-A	MOTOR ASSY, SPINDLE	
162	4-984-556-01	SHAFT (MAIN SHAFT)		M902	A-4672-133-A	MOTOR ASSY, SLED	
* 163	1-667-719-11	SW BOARD		M903	A-4672-134-A	MOTOR ASSY, LOADING (MD)	

(5) CD MECHANISM DECK SECTION-1  
(CDM13C-5BD19)



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
* 201	1-634-461-11	LOADING BOARD		221	4-944-012-01	TABLE, DISC	
202	4-927-654-01	WASHER (LIMITER)		222	A-4604-752-A	HOLDER (MG) ASSY	
203	3-659-338-00	SPRING, COMPRESSION		* 223	4-917-583-21	BRACKET, YOKE	
204	4-929-764-01	SHAFT (TABLE GUIDE)		* 224	X-4946-208-2	CHASSIS (MD) ASSY	
205	4-927-620-01	GEAR (P)		225	4-933-134-01	SCREW (+PTPWH M2.6X6)	
206	4-944-006-11	BEARING		226	4-958-593-01	SPRING (BU), COMPRESSION	
207	4-927-628-01	GEAR (C)		227	4-929-747-01	HOLDER (BU)	
208	4-927-649-01	BELT		228	4-929-727-01	CAM (A)	
209	4-929-724-01	PULLEY (B)		229	4-929-729-01	CAM (B)	
220	X-4947-265-1	ARM ASSY, SWING		M903	A-4608-362-A	MOTOR (L) ASSY (LOADING) (CD)	

**(6) CD MECHANISM DECK SECTION-2  
(CDM13C-5BD19)**



The components identified by mark  $\triangle$  or dotted line with mark  $\triangle$  are critical for safety.  
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
251	4-951-620-01	SCREW (2.6X8), +BVTP		256	1-769-069-11	WIRE (FLAT TYPE) (16 CORE)	
* 252	A-4673-402-A	BD (CD) BOARD, COMPLETE		257	4-917-567-01	GEAR (M)	
253	4-917-565-01	SHAFT, SLED		258	4-917-564-01	GEAR (P), FLATNESS	
254	4-951-940-01	INSULATOR (BU)		M101	X-4917-523-4	BASE (OUTSART) ASSY (SPINDLE)	
△255	8-848-367-11	OPTICAL PICK-UP KSS-213B/K-N		M102	X-4917-504-1	MOTOR ASSY (SLED)	

**AUDIO**

# SECTION 8

## ELECTRICAL PARTS LIST

## NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.

- -XX and -X mean standardized parts, so they may have some difference from the original one.

## • RESISTORS

All resistors are in ohms.

METAL: Metal-film resistor.

METAL OXIDE: Metal oxide-film resistor.

F: nonflammable

## • Abbreviation

AED : North European

G : German

HK : Hong Kong

MY : Malaysia

SP : Singapore

- Items marked “\*” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

## • SEMICONDUCTORS

In each case, u:  $\mu$ , for example:

uA. . :  $\mu$ A. . uPA. . :  $\mu$ PA. .

uPB. . :  $\mu$ PB. . uPC. . :  $\mu$ PC. .

uPD. . :  $\mu$ PD. .

## • CAPACITORS

uF:  $\mu$ F

## • COILS

uH:  $\mu$ H

The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety.  
Replace only with part number specified.

When indicating parts by reference number, please include the board.

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>			<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>								
*	A-4403-412-A	AUDIO BOARD, COMPLETE (AEP, UK, G, AED)	C769	1-162-294-31	CERAMIC	0.001uF	10%	50V									
*	A-4403-419-A	AUDIO BOARD, COMPLETE (MY, SP, HK)	C781	1-130-475-00	MYLAR	0.0022uF	5%	50V									
*****																	
< CAPACITOR >																	
C701	1-126-163-11	ELECT	4.7uF	20%	50V	C1501	1-126-967-11	ELECT	47uF	20%	16V (AEP, UK, G, AED)						
C702	1-126-163-11	ELECT	4.7uF	20%	50V	C1502	1-164-159-11	CERAMIC	0.1uF	50V (AEP, UK, G, AED)							
C703	1-126-163-11	ELECT	4.7uF	20%	50V	C1504	1-162-291-31	CERAMIC	560PF	10%	50V (AEP, UK, G, AED)						
C704	1-126-163-11	ELECT	4.7uF	20%	50V	C1505	1-126-157-11	ELECT	10uF	20%	16V (AEP, UK, G, AED)						
C705	1-126-163-11	ELECT	4.7uF	20%	50V	C1506	1-124-257-00	ELECT	2.2uF	20%	50V (AEP, UK, G, AED)						
C706	1-136-165-00	FILM	0.1uF	5%	50V	C1507	1-102-518-11	CERAMIC	33PF	5%	50V (AEP, UK, G, AED)						
C707	1-124-464-11	ELECT	0.22uF	20%	50V	C1508	1-162-288-31	CERAMIC	330PF	10%	50V (AEP, UK, G, AED)						
C708	1-130-473-00	MYLAR	0.0015uF	5%	50V	C1509	1-102-518-11	CERAMIC	33PF	5%	50V (AEP, UK, G, AED)						
C709	1-126-160-11	ELECT	1uF	20%	50V	C1510	1-162-306-11	CERAMIC	0.01uF	20%	16V (AEP, UK, G, AED)						
C712	1-162-294-31	CERAMIC	0.001uF	10%	50V	C1511	1-162-291-31	CERAMIC	560PF	10%	50V (AEP, UK, G, AED)						
C713	1-124-589-11	ELECT	47uF	20%	16V	C1512	1-162-306-11	CERAMIC	0.01uF	20%	16V (AEP, UK, G, AED)						
C714	1-136-165-00	FILM	0.1uF	5%	50V	< CONNECTOR >											
C715	1-136-165-00	FILM	0.1uF	5%	50V	C751	1-126-163-11	ELECT	4.7uF	20%	50V						
C716	1-124-261-00	ELECT	10uF	20%	50V	C752	1-126-163-11	ELECT	4.7uF	20%	50V						
C717	1-126-163-11	ELECT	4.7uF	20%	50V	C753	1-126-163-11	ELECT	4.7uF	20%	50V						
C718	1-162-290-31	CERAMIC	470PF	10%	50V	C754	1-126-163-11	ELECT	4.7uF	20%	50V						
C719	1-124-589-11	ELECT	47uF	20%	16V	C755	1-126-163-11	ELECT	4.7uF	20%	50V						
C720	1-124-589-11	ELECT	47uF	20%	16V	CN701	1-779-820-11	CONNECTOR, BOARD TO BOARD 14P									
C731	1-130-475-00	MYLAR	0.0022uF	5%	50V	CN702	1-779-820-11	CONNECTOR, BOARD TO BOARD 14P									
C743	1-124-589-11	ELECT	47uF	20%	16V	< DIODE >											
C751	1-126-163-11	ELECT	4.7uF	20%	50V	D701	8-719-987-63	DIODE 1N4148M									
C752	1-126-163-11	ELECT	4.7uF	20%	50V	D1501	8-719-987-63	DIODE 1N4148M (AEP, UK, G, AED)									
C753	1-126-163-11	ELECT	4.7uF	20%	50V	< IC >											
C754	1-126-163-11	ELECT	4.7uF	20%	50V	IC701	8-759-439-30	IC M62428FP									
C755	1-126-163-11	ELECT	4.7uF	20%	50V	IC702	8-759-634-51	IC M5218AP									
C756	1-136-165-00	FILM	0.1uF	5%	50V	IC1500	8-759-450-87	IC BU1922F (AEP, UK, G, AED)									
C757	1-124-464-11	ELECT	0.22uF	20%	50V	IC1501	8-759-636-55	IC M5218AFP (AEP, UK, G, AED)									
C758	1-130-473-00	MYLAR	0.0015uF	5%	50V	< COIL >											
C759	1-126-160-11	ELECT	1uF	20%	50V	L1501	1-410-521-11	INDUCTOR 100uH (AEP, UK, G, AED)									
C762	1-124-261-00	ELECT	10uF	20%	50V	< COIL >											
C763	1-130-477-00	MYLAR	0.0033uF	5%	50V	< COIL >											
C764	1-136-165-00	FILM	0.1uF	5%	50V	< COIL >											
C765	1-136-165-00	FILM	0.1uF	5%	50V	< COIL >											
C766	1-124-261-00	ELECT	10uF	20%	50V	< COIL >											
C767	1-126-163-11	ELECT	4.7uF	20%	50V	< COIL >											
C768	1-162-290-31	CERAMIC	470PF	10%	50V	< COIL >											

**AUDIO****BD (CD)**

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>			<u>Remark</u>	<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>			<u>Remark</u>
< TRANSISTOR >						< VIBRATOR >					
Q701	8-729-119-78	TRANSISTOR	2SC403SP-51			X1501	1-579-900-21	VIBRATOR, CRYSTAL (4.332MHz)			
Q702	8-729-141-30	TRANSISTOR	2SC3623A-LK					(AEP, UK, G, AED)			
Q703	8-729-422-57	TRANSISTOR	UN4111					*****			
Q751	8-729-119-78	TRANSISTOR	2SC403SP-51								
Q752	8-729-141-30	TRANSISTOR	2SC3623A-LK								
< RESISTOR >						A-4673-402-A BD (CD) BOARD, COMPLETE					
								*****			
R702	1-249-433-11	CARBON	22K	5%	1/4W	C101	1-126-607-11	ELECT CHIP	47uF	20%	4V
R703	1-249-903-00	CARBON	1M	5%	1/4W	C102	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
R704	1-249-429-11	CARBON	10K	5%	1/4W	C103	1-164-346-11	CERAMIC CHIP	1uF		16V
R705	1-249-843-11	CARBON	3.3K	5%	1/4W	C105	1-163-038-00	CERAMIC CHIP	0.1uF		25V
R706	1-247-885-00	CARBON	180K	5%	1/4W	C106	1-164-695-11	CERAMIC CHIP	0.0022uF	5%	50V
R707	1-249-425-11	CARBON	4.7K	5%	1/4W	C107	1-164-695-11	CERAMIC CHIP	0.0022uF	5%	50V
R708	1-249-421-11	CARBON	2.2K	5%	1/4W	C108	1-164-232-11	CERAMIC CHIP	0.01uF		50V
R709	1-247-895-00	CARBON	470K	5%	1/4W	C109	1-164-232-11	CERAMIC CHIP	0.01uF		50V
R710	1-249-435-11	CARBON	33K	5%	1/4W	C110	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V
R712	1-249-421-11	CARBON	2.2K	5%	1/4W	C111	1-163-038-00	CERAMIC CHIP	0.1uF		25V
R713	1-249-441-11	CARBON	100K	5%	1/4W	C112	1-163-038-00	CERAMIC CHIP	0.1uF		25V
R714	1-249-413-11	CARBON	470	5%	1/4W	C113	1-164-695-11	CERAMIC CHIP	0.0022uF	5%	50V
R715	1-249-413-11	CARBON	470	5%	1/4W	C114	1-164-005-11	CERAMIC CHIP	0.47uF		25V
R716	1-249-413-11	CARBON	470	5%	1/4W	C115	1-126-607-11	ELECT CHIP	47uF	20%	4V
R721	1-249-420-11	CARBON	1.8K	5%	1/4W	C116	1-163-016-00	CERAMIC CHIP	0.0039uF	10%	50V
R722	1-249-427-11	CARBON	6.8K	5%	1/4W	C117	1-164-005-11	CERAMIC CHIP	0.47uF		25V
R731	1-249-420-11	CARBON	1.8K	5%	1/4W	C118	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
R732	1-249-427-11	CARBON	6.8K	5%	1/4W	C119	1-163-038-00	CERAMIC CHIP	0.1uF		25V
R752	1-249-433-11	CARBON	22K	5%	1/4W	C120	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
R753	1-247-903-00	CARBON	1M	5%	1/4W	C121	1-163-038-00	CERAMIC CHIP	0.1uF		25V
R754	1-249-429-11	CARBON	10K	5%	1/4W	C122	1-164-232-11	CERAMIC CHIP	0.01uF		50V
R755	1-247-843-11	CARBON	3.3K	5%	1/4W	C123	1-163-038-00	CERAMIC CHIP	0.1uF		25V
R756	1-247-885-00	CARBON	180K	5%	1/4W	C124	1-126-607-11	ELECT CHIP	47uF	20%	4V
R757	1-249-425-11	CARBON	4.7K	5%	1/4W	C125	1-164-232-11	CERAMIC CHIP	0.01uF		50V
R758	1-249-421-11	CARBON	2.2K	5%	1/4W	C126	1-163-038-00	CERAMIC CHIP	0.1uF		25V
R759	1-247-895-00	CARBON	470K	5%	1/4W	C127	1-164-695-11	CERAMIC CHIP	0.0022uF	5%	50V
R760	1-247-887-00	CARBON	220K	5%	1/4W	C128	1-163-135-00	CERAMIC CHIP	560PF	5%	50V
R771	1-249-420-11	CARBON	1.8K	5%	1/4W	C129	1-163-038-00	CERAMIC CHIP	0.1uF		25V
R772	1-249-427-11	CARBON	6.8K	5%	1/4W	C130	1-164-336-11	CERAMIC CHIP	0.33uF		25V
R781	1-249-420-11	CARBON	1.8K	5%	1/4W	C131	1-163-038-00	CERAMIC CHIP	0.1uF		25V
R782	1-249-427-11	CARBON	6.8K	5%	1/4W	C132	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
R1501	1-247-807-31	CARBON	100	5%	1/4W	C133	1-163-145-00	CERAMIC CHIP	0.0015uF	5%	50V
					(AEP, UK, G, AED)	C134	1-164-346-11	CERAMIC CHIP	1uF		16V
R1502	1-249-432-11	CARBON	18K	5%	1/4W	C135	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
					(AEP, UK, G, AED)	C136	1-164-005-11	CERAMIC CHIP	0.47uF		25V
R1503	1-249-426-11	CARBON	5.6K	5%	1/4W	C137	1-164-232-11	CERAMIC CHIP	0.01uF		50V
					(AEP, UK, G, AED)	C139	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
R1504	1-249-441-11	CARBON	100K	5%	1/4W	C140	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
					(AEP, UK, G, AED)	C141	1-163-038-00	CERAMIC CHIP	0.1uF		25V
R1505	1-249-441-11	CARBON	100K	5%	1/4W	C142	1-163-038-00	CERAMIC CHIP	0.1uF		25V
					(AEP, UK, G, AED)	C145	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
R1506	1-260-079-11	CARBON	22	5%	1/2W	C146	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
					(AEP, UK, G, AED)	C147	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
R1507	1-249-417-11	CARBON	1K	5%	1/4W	C148	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
					(AEP, UK, G, AED)	C149	1-164-346-11	CERAMIC CHIP	1uF		16V
R1508	1-249-413-11	CARBON	470	5%	1/4W	C153	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
					(AEP, UK, G, AED)	C154	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
R1509	1-249-413-11	CARBON	470	5%	1/4W						
					(AEP, UK, G, AED)	< CONNECTOR >					

**BD (CD)****BD (MD)**

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>	<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>
CNU101	1-770-014-11	CONNECTOR, FFC/FPC 16P		R147	1-216-049-11	METAL GLAZE	1K 5% 1/10W
CNU102	1-770-013-11	CONNECTOR, FFC/FPC 19P		R148	1-216-049-11	METAL GLAZE	1K 5% 1/10W
		< IC >		R149	1-216-049-11	METAL GLAZE	1K 5% 1/10W
IC101	8-752-069-56	IC CXA1782BQ		R150	1-216-037-00	METAL CHIP	330 5% 1/10W
IC102	8-759-291-06	IC BA6397FP		R151	1-216-037-00	METAL CHIP	330 5% 1/10W
IC103	8-752-372-94	IC CXD2507AQ		R152	1-216-037-00	METAL CHIP	330 5% 1/10W
IC104	8-759-185-29	IC PCM1710U-B		R153	1-216-082-00	METAL GLAZE	24K 5% 1/10W
		< TRANSISTER >		R154	1-216-065-00	METAL CHIP	4.7K 5% 1/10W
Q101	8-729-010-08	TRANSISTOR MSB710-R		R156	1-216-085-00	METAL CHIP	33K 5% 1/10W
Q102	8-729-424-08	TRANSISTOR UN2111		R157	1-216-069-00	METAL CHIP	6.8K 5% 1/10W
Q103	8-729-421-22	TRANSISTOR UN2211		R158	1-216-001-00	METAL CHIP	10 5% 1/10W
		< VARIABLE RESISTER >					
		< RESISTER >		RV101	1-223-587-11	RES. ADJ. CARBON 22K	
R102	1-216-001-00	METAL CHIP	10 5% 1/10W	RV102	1-223-587-11	RES. ADJ. CARBON 22K	
R103	1-216-049-11	METAL GLAZE	1K 5% 1/10W	RV103	1-223-587-11	RES. ADJ. CARBON 22K	
R104	1-216-097-00	METAL GLAZE	100K 5% 1/10W			< SWITCH >	
R105	1-216-093-00	METAL CHIP	68K 5% 1/10W	S101	1-572-085-11	SWITCH, LEAF (LIMIT)	
R106	1-216-093-00	METAL CHIP	68K 5% 1/10W			< VIBRATOR >	
R107	1-216-093-00	METAL CHIP	68K 5% 1/10W	X101	1-579-280-11	VIBRATOR, CRYSTAL (16.9344MHz)	
R108	1-216-093-00	METAL CHIP	68K 5% 1/10W	*****	*****	*****	*****
R109	1-216-097-00	METAL GLAZE	100K 5% 1/10W	* A-4699-808-A BD (MD) BOARD, COMPLETE			
R110	1-216-083-00	METAL CHIP	27K 5% 1/10W	*****	*****	*****	*****
R111	1-216-083-00	METAL CHIP	27K 5% 1/10W			< CAPACITOR >	
R112	1-216-101-00	METAL CHIP	150K 5% 1/10W	C101	1-104-851-11	TANTAL. CHIP	10uF 20% 10V
R113	1-216-101-00	METAL CHIP	150K 5% 1/10W	C102	1-163-038-00	CERAMIC CHIP	0.1uF 25V
R114	1-216-061-00	METAL CHIP	3.3K 5% 1/10W	C103	1-104-851-11	TANTAL. CHIP	10uF 20% 10V
R115	1-216-061-00	METAL CHIP	6.8K 5% 1/10W	C104	1-104-851-11	TANTAL. CHIP	10uF 20% 10V
R116	1-216-049-11	METAL GLAZE	1K 5% 1/10W	C105	1-164-232-11	CERAMIC CHIP	0.01uF 50V
R117	1-216-099-00	METAL CHIP	47K 5% 1/10W	C106	1-163-275-11	CERAMIC CHIP	0.001uF 5% 50V
R118	1-216-099-00	METAL GLAZE	47K 5% 1/10W	C107	1-163-038-00	CERAMIC CHIP	0.1uF 25V
R119	1-216-089-00	METAL GLAZE	510K 5% 1/10W	C108	1-163-038-00	CERAMIC CHIP	0.1uF 25V
R120	1-216-089-00	METAL GLAZE	510K 5% 1/10W	C109	1-163-037-11	CERAMIC CHIP	0.022uF 10% 25V
R121	1-216-114-00	METAL GLAZE	120K 5% 1/10W	C110	1-163-038-00	CERAMIC CHIP	0.1uF 25V
R122	1-216-097-00	METAL GLAZE	120K 5% 1/10W	C111	1-164-344-11	CERAMIC CHIP	0.068uF 10% 25V
R123	1-216-097-00	METAL CHIP	18K 5% 1/10W	C112	1-163-017-00	CERAMIC CHIP	0.0047uF 5% 50V
R124	1-216-091-00	METAL CHIP	18K 5% 1/10W	C113	1-164-346-11	CERAMIC CHIP	1uF 16V
R125	1-216-069-00	METAL CHIP	3.9K 5% 1/10W	C115	1-164-489-11	CERAMIC CHIP	0.22uF 10% 16V
R126	1-216-063-00	METAL GLAZE	3.9K 5% 1/10W	C116	1-163-037-11	CERAMIC CHIP	0.022uF 10% 25V
R127	1-216-089-00	METAL GLAZE	3.9K 5% 1/10W	C117	1-163-038-00	CERAMIC CHIP	0.1uF 25V
R128	1-216-105-00	METAL GLAZE	3.9K 5% 1/10W	C118	1-163-038-00	CERAMIC CHIP	0.1uF 25V
R129	1-216-049-11	METAL GLAZE	1M 5% 1/10W	C119	1-104-851-11	TANTAL. CHIP	10uF 20% 10V
R130	1-216-079-00	METAL CHIP	1M 5% 1/10W	C121	1-126-206-11	ELECT CHIP	100uF 20% 6.3V
R131	1-216-079-00	METAL CHIP	1M 5% 1/10W	C122	1-164-232-11	CERAMIC CHIP	0.01uF 50V
R132	1-216-061-00	METAL CHIP	1M 5% 1/10W	C123	1-163-038-00	CERAMIC CHIP	0.1uF 25V
R133	1-216-061-00	METAL CHIP	1M 5% 1/10W	C124	1-163-038-00	CERAMIC CHIP	0.1uF 25V
R134	1-216-065-00	METAL CHIP	1M 5% 1/10W	C127	1-163-038-00	CERAMIC CHIP	0.1uF 25V
R135	1-216-065-00	METAL CHIP	1M 5% 1/10W	C128	1-164-232-11	CERAMIC CHIP	0.01uF 50V
R136	1-216-073-00	METAL CHIP	1M 5% 1/10W	C129	1-107-823-11	CERAMIC CHIP	0.47uF 10% 16V
R137	1-216-065-00	METAL CHIP	1M 5% 1/10W	C130	1-163-251-11	CERAMIC CHIP	100PF 5% 50V
R138	1-216-049-11	METAL GLAZE	1M 5% 1/10W	C131	1-163-023-00	CERAMIC CHIP	0.015uF 5% 50V
R139	1-216-033-00	METAL CHIP	220 5% 1/10W	C132	1-107-823-11	CERAMIC CHIP	0.47uF 10% 16V
R140	1-216-081-00	METAL CHIP	220 5% 1/10W	C133	1-163-017-00	CERAMIC CHIP	0.0047uF 5% 50V
R141	1-216-061-00	METAL CHIP	220 5% 1/10W	C134	1-163-038-00	CERAMIC CHIP	0.1uF 25V
R142	1-216-061-00	METAL CHIP	220 5% 1/10W				
R143	1-216-121-00	METAL GLAZE	220 5% 1/10W				
R144	1-216-073-00	METAL CHIP	10K 5% 1/10W				
R145	1-216-097-00	METAL GLAZE	100K 5% 1/10W				
R146	1-216-097-00	METAL GLAZE	100K 5% 1/10W				

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark		
C135	1-163-038-00	CERAMIC CHIP	0.1uF	25V	C2001	1-163-038-00	CERAMIC CHIP	0.1uF	25V
C136	1-126-206-11	ELECT CHIP	100uF	20%	C2002	1-163-038-00	CERAMIC CHIP	0.1uF	25V
C139	1-163-235-11	CERAMIC CHIP	22PF	5%	C2003	1-163-038-00	CERAMIC CHIP	0.1uF	25V
C140	1-163-099-00	CERAMIC CHIP	18PF	5%	C2004	1-163-038-00	CERAMIC CHIP	0.1uF	25V
C142	1-163-251-11	CERAMIC CHIP	100PF	5%	50V				
C143	1-163-251-11	CERAMIC CHIP	100PF	5%	50V				
C144	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	< CONNECTOR >			
C151	1-126-206-11	ELECT CHIP	100uF	20%	CN101	1-766-508-11	CONNECTOR, FFC/FPC (ZIF) 22P		
C152	1-163-038-00	CERAMIC CHIP	0.1uF		CN104	1-778-283-21	CONNECTOR, FFC/FPC 4P		
C153	1-164-232-11	CERAMIC CHIP	0.01uF		CN106	1-774-771-21	CONNECTOR, FFC/FPC 14P		
					CN107	1-779-854-21	CONNECTOR, FFC/FPC 25P		
C156	1-163-038-00	CERAMIC CHIP	0.1uF						
C158	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V				
C160	1-104-601-11	ELECT CHIP	10uF	20%	D101	8-719-988-62	DIODE 1SS355		
C161	1-104-601-11	ELECT CHIP	10uF	20%	D181	8-719-046-86	DIODE F1J6TP		
C163	1-164-232-11	CERAMIC CHIP	0.01uF		D183	8-719-046-86	DIODE F1J6TP		
C164	1-164-232-11	CERAMIC CHIP	0.01uF		50V				
C167	1-163-038-00	CERAMIC CHIP	0.1uF						
C168	1-163-038-00	CERAMIC CHIP	0.1uF		IC101	8-752-080-95	IC CXA2523AR		
C169	1-104-851-11	TANTAL. CHIP	10uF	20%	IC103	8-729-903-10	IC TRANSISTOR FMW1		
C171	1-163-038-00	CERAMIC CHIP	0.1uF		IC121	8-752-384-47	IC CXD2652AR		
					IC124	8-759-334-38	IC MSM51V4400-70TS-K		
C181	1-126-206-11	ELECT CHIP	100uF	20%	IC152	8-759-430-25	IC BH6511FS-E2		
C182	1-163-038-00	CERAMIC CHIP	0.1uF						
C183	1-163-038-00	CERAMIC CHIP	0.1uF		IC153	8-759-481-19	IC LB1830M-S-TE-L		
C184	1-117-970-11	ELECT CHIP	22uF	20%	IC171	8-759-428-58	IC XL24C01AF-E2		
C185	1-164-611-11	CERAMIC CHIP	0.001uF	10%	IC181	8-759-481-17	IC MC74ACT08DTR2		
					IC192	8-759-460-72	IC BA033FP		
C188	1-164-232-11	CERAMIC CHIP	0.01uF		IC201	8-759-471-38	IC AK4520A-VF-E2		
C189	1-163-989-11	CERAMIC CHIP	0.033uF	10%					
C190	1-126-206-11	ELECT CHIP	100uF	20%	IC316	8-759-493-28	IC M30610MC-109FP		
C191	1-163-038-00	CERAMIC CHIP	0.1uF						
C192	1-163-038-00	CERAMIC CHIP	0.1uF		IC401	8-759-242-70	IC TC7WU04F		
C197	1-163-038-00	CERAMIC CHIP	0.1uF		< COIL >				
C201	1-164-695-11	CERAMIC CHIP	0.0022uF	5%	25V				
C202	1-164-695-11	CERAMIC CHIP	0.0022uF	5%	L101	1-414-235-11	INDUCTOR, FERRITE BEAD		
C203	1-163-038-00	CERAMIC CHIP	0.1uF		L102	1-414-235-11	INDUCTOR, FERRITE BEAD		
C205	1-126-206-11	ELECT CHIP	100uF	20%	L103	1-414-235-11	INDUCTOR, FERRITE BEAD		
					L105	1-414-235-11	INDUCTOR, FERRITE BEAD		
C206	1-115-363-11	CERAMIC CHIP	10uF		L106	1-414-235-11	INDUCTOR, FERRITE BEAD		
C207	1-163-038-00	CERAMIC CHIP	0.1uF						
C208	1-115-363-11	CERAMIC CHIP	10uF		L121	1-414-235-11	INDUCTOR, FERRITE BEAD		
C209	1-163-038-00	CERAMIC CHIP	0.1uF		L122	1-414-235-11	INDUCTOR, FERRITE BEAD		
C210	1-163-038-00	CERAMIC CHIP	0.1uF		L151	1-412-622-51	INDUCTOR 10uH		
					L152	1-412-622-51	INDUCTOR 10uH		
C212	1-163-038-00	CERAMIC CHIP	0.1uF		L153	1-412-039-51	INDUCTOR CHIP 100uH		
C213	1-115-363-11	CERAMIC CHIP	10uF						
C214	1-115-363-11	CERAMIC CHIP	10uF		L154	1-412-039-51	INDUCTOR CHIP 100uH		
C216	1-124-779-00	ELECT CHIP	10uF	20%	L161	1-414-235-11	INDUCTOR, FERRITE BEAD		
C350	1-163-038-00	CERAMIC CHIP	0.1uF		L162	1-414-235-11	INDUCTOR, FERRITE BEAD		
					L181	1-424-675-11	COIL, CHOKE 33uH		
C352	1-124-779-00	ELECT CHIP	10uF	20%	L201	1-412-776-11	INDUCTOR 1uH		
C353	1-163-038-00	CERAMIC CHIP	0.1uF						
C354	1-163-038-00	CERAMIC CHIP	0.1uF		L301	1-414-235-11	INDUCTOR, FERRITE BEAD		
C355	1-163-251-11	CERAMIC CHIP	100PF	5%	25V				
					L351	1-216-295-11	CONDUCTOR, CHIP (2012)		
C357	1-164-232-11	CERAMIC CHIP	0.01uF		L401	1-216-025-00	METAL GLAZE 100 5% 1/10W		
C358	1-163-251-11	CERAMIC CHIP	100PF	5%	50V				
C359	1-163-251-11	CERAMIC CHIP	100PF	5%					
C361	1-163-038-00	CERAMIC CHIP	0.1uF		< TRANSISTOR >				
C362	1-163-251-11	CERAMIC CHIP	100PF	5%	25V				
					Q101	8-729-028-91	TRANSISTOR DTA144EUA-T106		
C363	1-163-251-11	CERAMIC CHIP	100PF	5%	50V				
C401	1-163-038-00	CERAMIC CHIP	0.1uF		Q102	8-729-026-53	TRANSISTOR 2SA1576A-T106-QR		
C402	1-164-232-11	CERAMIC CHIP	0.01uF	10%	Q103	8-729-028-99	TRANSISTOR RT1N144M-TP-1		
					Q104	8-729-028-99	TRANSISTOR RT1N144M-TP-1		
					Q162	8-729-101-07	TRANSISTOR 2SB798-DL		
					Q163	8-729-028-91	TRANSISTOR DTA144EUA-T106		

**BD (MD)**

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>	<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>
Q181	8-729-018-75	TRANSISTOR 2SJ278MY		R198	1-216-295-11	CONDUCTOR, CHIP (2012)	
Q182	8-729-017-65	TRANSISTOR 2SK1764KY		R199	1-216-295-11	CONDUCTOR, CHIP (2012)	
Q350	8-729-028-99	TRANSISTOR RT1N144M-TP-1		R200	1-216-295-11	CONDUCTOR, CHIP (2012)	
		< RESISTOR >		R202	1-216-041-00	METAL CHIP 470	5% 1/10W
R101	1-216-025-00	METAL GLAZE 100	5% 1/10W	R203	1-216-025-00	METAL GLAZE 100	5% 1/10W
R103	1-216-049-11	METAL GLAZE 1K	5% 1/10W	R204	1-216-025-00	METAL GLAZE 100	5% 1/10W
R104	1-216-073-00	METAL CHIP 10K	5% 1/10W	R210	1-216-041-00	METAL CHIP 470	5% 1/10W
R105	1-216-065-00	METAL CHIP 4.7K	5% 1/10W	R330	1-216-073-00	METAL CHIP 10K	5% 1/10W
R106	1-216-133-00	METAL CHIP 3.3M	5% 1/10W	R331	1-216-073-00	METAL CHIP 10K	5% 1/10W
R107	1-216-113-00	METAL CHIP 470K	5% 1/10W	R332	1-216-097-00	METAL GLAZE 100K	5% 1/10W
R110	1-216-073-00	METAL CHIP 10K	5% 1/10W	R333	1-216-073-00	METAL CHIP 10K	5% 1/10W
R112	1-216-089-00	METAL GLAZE 47K	5% 1/10W	R351	1-216-053-00	METAL CHIP 1.5K	5% 1/10W
R113	1-216-049-11	METAL GLAZE 1K	5% 1/10W	R352	1-216-061-00	METAL GLAZE 3.3K	5% 1/10W
R115	1-216-049-11	METAL GLAZE 1K	5% 1/10W	R356	1-216-025-00	METAL GLAZE 100	5% 1/10W
R117	1-216-113-00	METAL CHIP 470K	5% 1/10W	R361	1-216-073-00	METAL CHIP 10K	5% 1/10W
R121	1-216-097-00	METAL GLAZE 100K	5% 1/10W	R362	1-216-025-00	METAL GLAZE 100	5% 1/10W
R125	1-216-025-00	METAL GLAZE 100	5% 1/10W	R363	1-216-073-00	METAL CHIP 10K	5% 1/10W
R128	1-216-041-00	METAL GLAZE 470	5% 1/10W	R366	1-216-097-00	METAL GLAZE 100K	5% 1/10W
R131	1-216-073-00	METAL CHIP 10K	5% 1/10W	R367	1-216-097-00	METAL GLAZE 100K	5% 1/10W
R132	1-216-097-00	METAL GLAZE 100K	5% 1/10W	R379	1-216-073-00	METAL CHIP 10K	5% 1/10W
R133	1-216-117-00	METAL CHIP 680K	5% 1/10W	R380	1-216-073-00	METAL CHIP 10K	5% 1/10W
R134	1-216-049-11	METAL GLAZE 1K	5% 1/10W	R381	1-216-073-00	METAL CHIP 10K	5% 1/10W
R135	1-216-061-00	METAL CHIP 3.3K	5% 1/10W	R382	1-216-073-00	METAL CHIP 10K	5% 1/10W
R136	1-216-049-11	METAL GLAZE 1K	5% 1/10W	R383	1-216-073-00	METAL CHIP 10K	5% 1/10W
R137	1-216-025-00	METAL GLAZE 100	5% 1/10W	R384	1-216-073-00	METAL CHIP 10K	5% 1/10W
R140	1-216-029-00	METAL CHIP 150	5% 1/10W	R386	1-216-073-00	METAL CHIP 10K	5% 1/10W
R142	1-216-073-00	METAL CHIP 10K	5% 1/10W	R387	1-216-097-00	METAL GLAZE 100K	5% 1/10W
R143	1-216-073-00	METAL CHIP 10K	5% 1/10W	R388	1-216-097-00	METAL GLAZE 100K	5% 1/10W
R144	1-216-025-00	METAL GLAZE 100	5% 1/10W	R389	1-216-097-00	METAL GLAZE 100K	5% 1/10W
R146	1-216-037-00	METAL CHIP 330	5% 1/10W	R391	1-216-073-00	METAL CHIP 10K	5% 1/10W
R147	1-216-025-00	METAL GLAZE 100	5% 1/10W	R393	1-216-073-00	METAL CHIP 10K	5% 1/10W
R148	1-216-045-00	METAL CHIP 680	5% 1/10W	R400	1-216-073-00	METAL CHIP 10K	5% 1/10W
R158	1-216-097-00	METAL GLAZE 100K	5% 1/10W	R401	1-216-089-00	METAL GLAZE 47K	5% 1/10W
R159	1-216-097-00	METAL GLAZE 100K	5% 1/10W	R402	1-216-113-00	METAL GLAZE 470K	5% 1/10W
R161	1-216-057-00	METAL CHIP 2.2K	5% 1/10W	R405	1-216-063-00	METAL GLAZE 3.9K	5% 1/10W
R162	1-216-057-00	METAL CHIP 2.2K	5% 1/10W	R420	1-216-097-00	METAL GLAZE 100K	5% 1/10W
R163	1-216-057-00	METAL CHIP 2.2K	5% 1/10W	R421	1-216-097-00	METAL GLAZE 100K	5% 1/10W
R164	1-216-033-00	METAL CHIP 220	5% 1/10W	R422	1-216-097-00	METAL GLAZE 100K	5% 1/10W
R165	1-216-097-00	METAL GLAZE 100K	5% 1/10W	R423	1-216-097-00	METAL GLAZE 100K	5% 1/10W
R166	1-220-149-11	METAL GLAZE 2.2	10% 1/2W	R424	1-216-097-00	METAL GLAZE 100K	5% 1/10W
R167	1-216-065-00	METAL CHIP 4.7K	5% 1/10W	R425	1-216-097-00	METAL GLAZE 100K	5% 1/10W
R169	1-219-724-11	METAL CHIP 1	1% 1/4W	R429	1-216-097-00	METAL GLAZE 100K	5% 1/10W
R170	1-216-073-00	METAL CHIP 10K	5% 1/10W	R430	1-216-097-00	METAL GLAZE 100K	5% 1/10W
R171	1-216-073-00	METAL CHIP 10K	5% 1/10W	R431	1-216-097-00	METAL GLAZE 100K	5% 1/10W
R175	1-216-061-00	METAL CHIP 3.3K	5% 1/10W	R432	1-216-097-00	METAL GLAZE 100K	5% 1/10W
R177	1-216-061-00	METAL CHIP 3.3K	5% 1/10W	R433	1-216-097-00	METAL GLAZE 100K	5% 1/10W
R178	1-216-295-11	CONDUCTOR, CHIP (2012)		R434	1-216-097-00	METAL GLAZE 100K	5% 1/10W
R179	1-216-091-00	METAL CHIP 56K	5% 1/10W	R435	1-216-097-00	METAL GLAZE 100K	5% 1/10W
R180	1-216-073-00	METAL CHIP 10K	5% 1/10W	R438	1-216-097-00	METAL GLAZE 100K	5% 1/10W
R182	1-216-089-00	METAL GLAZE 47K	5% 1/10W	R439	1-216-097-00	METAL GLAZE 100K	5% 1/10W
R183	1-216-089-00	METAL GLAZE 47K	5% 1/10W	R440	1-216-097-00	METAL GLAZE 100K	5% 1/10W
R184	1-216-073-00	METAL CHIP 10K	5% 1/10W	R441	1-216-097-00	METAL GLAZE 100K	5% 1/10W
R188	1-216-073-00	METAL CHIP 10K	5% 1/10W	R442	1-216-097-00	METAL GLAZE 100K	5% 1/10W
R189	1-216-073-00	METAL CHIP 10K	5% 1/10W	R443	1-216-097-00	METAL GLAZE 100K	5% 1/10W
R190	1-216-073-00	METAL CHIP 10K	5% 1/10W	R444	1-216-097-00	METAL GLAZE 100K	5% 1/10W
R195	1-216-295-11	CONDUCTOR, CHIP (2012)		R445	1-216-097-00	METAL GLAZE 100K	5% 1/10W
R196	1-216-295-11	CONDUCTOR, CHIP (2012)		R448	1-216-097-00	METAL GLAZE 100K	5% 1/10W

BD (MD)

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Ref. No.	Part No.	Description			Remark	Ref. No.	Part No.	Description		Remark	
R449	1-216-097-00	METAL GLAZE	100K	5%	1/10W	D422	8-719-987-63	DIODE 1N4148M	< DIODE >		
R451	1-216-097-00	METAL GLAZE	100K	5%	1/10W	D430	8-719-987-63	DIODE 1N4148M			
R454	1-216-097-00	METAL GLAZE	100K	5%	1/10W	D431	8-719-987-63	DIODE 1N4148M			
R455	1-216-097-00	METAL GLAZE	100K	5%	1/10W	D447	8-719-987-63	DIODE 1N4148M			
R456	1-216-097-00	METAL GLAZE	100K	5%	1/10W	D497	8-719-987-63	DIODE 1N4148M			
R457	1-216-097-00	METAL GLAZE	100K	5%	1/10W				< JACK >		
R458	1-216-097-00	METAL GLAZE	100K	5%	1/10W	J401	1-764-767-21	JACK, PIN 2P (TAPE B INPUT)			
R460	1-216-073-00	METAL CHIP	10K	5%	1/10W	J402	1-764-767-21	JACK, PIN 2P (TAPE A OUTPUT)			
R462	1-216-073-00	METAL CHIP	10K	5%	1/10W	L448	1-420-872-00	COIL, AIR-CORE	< COIL >		
R502	1-216-295-11	CONDUCTOR, CHIP (2012)				L498	1-420-872-00	COIL, AIR-CORE			
R504	1-216-295-11	CONDUCTOR, CHIP (2012)							< TRANSISTOR >		
R600	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	Q400	8-729-620-05	TRANSISTOR 2SC2603-EF			
R602	1-216-025-00	METAL GLAZE	100	5%	1/10W	Q410	8-729-141-30	TRANSISTOR 2SC3623A-LK			
R603	1-216-025-00	METAL GLAZE	100	5%	1/10W	Q420	8-729-620-05	TRANSISTOR 2SC2603-EF			
R604	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	Q431	8-729-900-80	TRANSISTOR DTC114ES			
R605	1-216-025-00	METAL GLAZE	100	5%	1/10W	Q432	8-729-620-05	TRANSISTOR 2SC2603-EF			
R606	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	Q433	8-729-620-05	TRANSISTOR 2SC2603-EF			
R607	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	Q434	8-729-119-76	TRANSISTOR 2SA1175-HFE			
R608	1-216-025-00	METAL GLAZE	100	5%	1/10W	Q435	8-729-620-05	TRANSISTOR 2SC2603-EF			
R2001	1-216-001-00	METAL CHIP	10	5%	1/10W	Q436	8-729-620-05	TRANSISTOR 2SC2603-EF			
R2002	1-216-296-00	CONDUCTOR, CHIP (3216)				Q450	8-729-620-05	TRANSISTOR 2SC2603-EF			
< VIBRATOR >											
X101	1-767-151-11	VIBRATOR, CRYSTAL (22MHz)				Q460	8-729-141-30	TRANSISTOR 2SC3623A-LK			
X302	1-767-670-11	VIBRATOR, CERAMIC (7MHz)									
*****											
*	A-4403-414-A	JACK BOARD, COMPLETE (AEP, UK, G, AED)									
*	A-4403-421-A	JACK BOARD, COMPLETE (MY, SP, HK)									
*****											
< CAPACITOR >											
C401	1-162-282-31	CERAMIC	100PF	10%	50V	R401	1-249-417-11	CARBON	1K	5%	1/4W
C411	1-162-282-31	CERAMIC	100PF	10%	50V	R402	1-249-441-11	CARBON	100K	5%	1/4W
C412	1-162-290-31	CERAMIC	470PF	10%	50V	R403	1-249-425-11	CARBON	4.7K	5%	1/4W
C413	1-126-964-11	ELECT	10uF	20%	50V	R404	1-249-425-11	CARBON	4.7K	5%	1/4W
C421	1-162-282-31	CERAMIC	100PF	10%	50V	R405	1-249-429-11	CARBON	10K	5%	1/4W
C431	1-126-925-11	ELECT	470uF	20%	10V	R411	1-249-441-11	CARBON	100K	5%	1/4W
C432	1-126-933-11	ELECT	100uF	20%	16V	R412	1-249-417-11	CARBON	1K	5%	1/4W
C448	1-136-165-00	FILM	0.1uF	5%	50V	R413	1-249-429-11	CARBON	10K	5%	1/4W
C449	1-136-165-00	FILM	0.1uF	5%	50V	R414	1-249-421-11	CARBON	2.2K	5%	1/4W
C451	1-162-282-31	CERAMIC	100PF	10%	50V	R415	1-249-441-11	CARBON	100K	5%	1/4W
C461	1-162-282-31	CERAMIC	100PF	10%	50V	R421	1-249-393-11	CARBON	10	5%	1/4W
C462	1-162-290-31	CERAMIC	470PF	10%	50V	R422	1-249-429-11	CARBON	10K	5%	1/4W
C463	1-126-964-11	ELECT	10uF	20%	50V	R423	1-249-425-11	CARBON	4.7K	5%	1/4W
C473	1-136-173-00	FILM	0.47uF	5%	50V	R431	1-249-433-11	CARBON	22K	5%	1/4W
C498	1-136-165-00	FILM	0.1uF	5%	50V	R433	1-249-439-11	CARBON	68K	5%	1/4W
C499	1-136-165-00	FILM	0.1uF	5%	50V	R434	1-249-437-11	CARBON	47K	5%	1/4W
< CONNECTOR >											
* CN401	1-568-858-11	SOCKET, CONNECTOR 15P				R435	1-249-437-11	CARBON	47K	5%	1/4W
CN402	1-564-506-11	PLUG, CONNECTOR 3P				R436	1-249-433-11	CARBON	22K	5%	1/4W
* CN404	1-770-379-11	CONNECTOR, BOARD TO BOARD 6P				△ R444	1-216-478-11	METAL OXIDE (AEP, UK, G, AED)	390	5%	3W F
* CN420	1-565-561-11	PIN, CONNECTOR 3P (AU BUS)				△ R444	1-215-914-11	METAL OXIDE (MY, SP, HK)	330	5%	3W F
* CN430	1-565-500-11	CONNECTOR, BOARD TO BOARD 9P				R445	1-260-089-11	CARBON	150	5%	1/2W
* CN490	1-568-943-11	PIN, CONNECTOR 5P				R446	1-260-089-11	CARBON	150	5%	1/2W
						R447	1-249-431-11	CARBON	15K	5%	1/4W
						R448	1-260-076-11	CARBON	10	5%	1/2W
						R449	1-260-076-11	CARBON	10	5%	1/2W
						R451	1-249-417-11	CARBON	1K	5%	1/4W

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

**JACK**    **LOADING**    **MAIN**

<b>Ref. No.</b>	<b>Part No.</b>	<b>Description</b>	<b>Remark</b>	<b>Ref. No.</b>	<b>Part No.</b>	<b>Description</b>	<b>Remark</b>				
R452	1-249-441-11	CARBON	100K	5%	1/4W	C550	1-117-850-11	ELECT (SOLID)	15000uF	20%	16V
R453	1-249-425-11	CARBON	4.7K	5%	1/4W	C551	1-136-165-00	FILM	0.1uF	5%	50V
R454	1-249-425-11	CARBON	4.7K	5%	1/4W	C552	1-136-165-00	FILM	0.1uF	5%	50V
R455	1-249-429-11	CARBON	10K	5%	1/4W	C561	1-126-791-11	ELECT	10uF	20%	16V
R461	1-249-441-11	CARBON	100K	5%	1/4W	C562	1-126-916-11	ELECT	1000uF	20%	6.3V
R462	1-249-417-11	CARBON	1K	5%	1/4W	C563	1-162-306-11	CERAMIC	0.01uF	20%	16V
R463	1-249-429-11	CARBON	10K	5%	1/4W	C564	1-126-964-11	ELECT	10uF	20%	50V
R464	1-249-421-11	CARBON	2.2K	5%	1/4W	C565	1-126-916-11	ELECT	1000uF	20%	6.3V
R465	1-249-441-11	CARBON	100K	5%	1/4W	C566	1-126-916-11	ELECT	1000uF	20%	6.3V
R495	1-260-089-11	CARBON	150	5%	1/2W	C572	1-126-960-11	ELECT	1uF	20%	50V
R496	1-260-089-11	CARBON	150	5%	1/2W	C573	1-126-965-11	ELECT	22uF	20%	50V
R497	1-249-431-11	CARBON	15K	5%	1/4W	C574	1-126-923-11	ELECT	220uF	20%	10V
R498	1-260-076-11	CARBON	10	5%	1/2W	C575	1-126-923-11	ELECT	220uF	20%	10V
			(AEP, UK, G, AED)			C576	1-126-964-11	ELECT	10uF	20%	50V
R499	1-260-076-11	CARBON	10	5%	1/2W	C577	1-126-923-11	ELECT	220uF	20%	10V
			(AEP, UK, G, AED)			C578	1-164-159-11	CERAMIC	0.1uF		50V
						C579	1-110-489-11	CAPACITOR	1F		5.5V
RY430	1-515-833-11	RELAY				C580	1-126-933-11	ELECT	100uF	20%	16V
						C591	1-126-163-11	ELECT	4.7uF	20%	50V
						C592	1-164-159-11	CERAMIC	0.1uF		50V
						C602	1-164-159-11	CERAMIC	0.1uF		50V
						C604	1-126-960-11	ELECT	1uF	20%	50V
						C608	1-126-096-11	ELECT	10uF	20%	25V
*	1-634-461-11	LOADING BOARD				C612	1-124-589-11	ELECT	47uF	20%	16V
			*****			C613	1-162-306-11	CERAMIC	0.01uF	20%	16V
						C614	1-102-514-11	CERAMIC	22PF	5%	50V
						C615	1-102-514-11	CERAMIC	22PF	5%	50V
*	CN291	1-564-498-11	PIN, CONNECTOR 5P			C616	1-124-589-11	ELECT	47uF	20%	16V
						C617	1-162-294-31	CERAMIC	0.001uF	10%	50V
						C618	1-136-165-00	FILM	0.1uF	5%	50V
						C619	1-136-165-00	FILM	0.1uF	5%	50V
S291	1-571-924-11	SWITCH, LEAF ( LOAD OUT )				C620	1-136-165-00	FILM	0.1uF	5%	50V
S292	1-571-924-11	SWITCH, LEAF ( LOAD IN )				C621	1-126-967-11	ELECT	47uF	20%	16V
*****	*****	*****	*****			C622	1-125-623-11	CAP, DOUBLE LAYER	0.22F		5.5V
*	A-4403-408-A	MAIN BOARD, COMPLETE (AEP, UK, G, AED)				C807	1-164-159-11	CERAMIC	0.1uF		50V
*	A-4403-415-A	MAIN BOARD, COMPLETE (MY, SP, HK)				C808	1-126-967-11	ELECT	47uF	20%	16V
			*****			C809	1-126-925-11	ELECT	470uF	20%	10V
						C814	1-162-306-11	CERAMIC	0.01uF	20%	16V
						C815	1-162-306-11	CERAMIC	0.01uF	20%	16V
						C816	1-162-306-11	CERAMIC	0.01uF	20%	16V
						C817	1-126-967-11	ELECT	47uF	20%	16V
C501	1-128-548-11	ELECT	4700uF	20%	25V	C821	1-126-096-11	ELECT	10uF	20%	35V
C502	1-104-665-11	ELECT	100uF	20%	25V	C822	1-162-290-31	CERAMIC	470PF	10%	50V
C503	1-136-165-00	FILM	0.1uF	5%	50V	C823	1-126-916-11	ELECT	1000uF	20%	6.3V
C504	1-136-165-00	FILM	0.1uF	5%	50V	C831	1-126-096-11	ELECT	10uF	20%	35V
C511	1-126-096-11	ELECT	10uF	20%	35V	C832	1-162-290-31	CERAMIC	470PF	10%	50V
C512	1-126-926-11	ELECT	1000uF	20%	10V	C833	1-126-964-11	ELECT	10uF	20%	50V
C513	1-162-306-11	CERAMIC	0.01uF	20%	16V	C834	1-162-306-11	CERAMIC	0.01uF	30%	16V
C514	1-126-926-11	ELECT	1000uF	20%	10V	C835	1-162-285-31	CERAMIC	180PF	10%	50V
C515	1-126-934-11	ELECT	220uF	20%	16V	C837	1-126-925-11	CERAMIC	470uF	20%	10V
C516	1-126-933-11	ELECT	100uF	20%	16V	C839	1-162-282-31	CERAMIC	100PF	10%	50V
C522	1-126-934-11	ELECT	220uF	20%	16V	C841	1-164-159-11	CERAMIC	0.1uF		50V
C523	1-126-934-11	ELECT	220uF	20%	16V	C842	1-164-159-11	CERAMIC	0.1uF		50V
C525	1-126-933-11	ELECT	100uF	20%	16V	C871	1-126-163-11	ELECT	4.7uF	20%	50V
C531	1-126-969-11	ELECT	220uF	20%	50V	C872	1-126-163-11	ELECT	4.7uF	20%	50V
C532	1-126-969-11	ELECT	220uF	20%	50V	C881	1-126-959-11	ELECT	0.47uF	20%	50V
C533	1-126-969-11	ELECT	220uF	20%	50V						
C535	1-126-964-11	ELECT	10uF	20%	50V						
C536	1-126-947-11	ELECT	47uF	20%	35V						

**MAIN**

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>		<u>Remark</u>	<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>		<u>Remark</u>
<b>&lt; CONNECTOR &gt;</b>									
CN503	1-564-511-11	PLUG, CONNECTOR 8P			IC601	8-759-480-96	IC uPD78078GF-062-3BA		
CN506	1-770-412-11	CONNECTOR, BOARD TO BOARD 6P			IC602	8-759-635-63	IC M51943BSL		
CN590	1-564-506-11	PLUG, CONNECTOR 3P			IC603	8-759-481-02	IC M62016L		
CN801	1-770-067-11	CONNECTOR, FFC/FPC 19P			IC801	8-759-822-09	IC LB1641		
* CN802	1-564-339-00	PIN, CONNECTOR 5P			IC840	8-759-269-09	IC SN74HCT04ANS		
					IC842	8-759-267-86	IC SN74HC00ANS		
<b>&lt; COIL &gt;</b>									
CN820	1-770-653-11	CONNECTOR, FFC/FPC 25P			L523	1-408-117-00	INDUCTOR	10uH	
CN850	1-691-648-11	SOCKET, CONNECTOR 15P			L601	1-410-509-11	INDUCTOR	10uH	
CN870	1-568-834-11	SOCKET, CONNECTOR 15P			L739	1-410-470-11	INDUCTOR	10uH	
CN871	1-779-819-11	CONNECTOR, BOARD TO BOARD 14P							
CN872	1-779-819-11	CONNECTOR, BOARD TO BOARD 14P							
* CN873	1-568-839-11	SOCKET, CONNECTOR 23P			<b>&lt; TRANSISTOR &gt;</b>				
<b>&lt; DIODE &gt;</b>									
D501	8-719-200-82	DIODE 11ES2			Q510	8-729-111-29	TRANSISTOR	2SD1616A-K	
D502	8-719-200-82	DIODE 11ES2			Q520	8-729-118-00	TRANSISTOR	2SB1116-L	
D503	8-719-200-82	DIODE 11ES2			Q521	8-729-119-76	TRANSISTOR	2SA1175-HFE	
D504	8-719-200-82	DIODE 11ES2			Q530	8-729-018-59	TRANSISTOR	2SB1375-LC	
D511	8-719-013-13	DIODE UZ-8.2BSC-TP			Q561	8-729-118-01	TRANSISTOR	2SB1116	
D521	8-719-013-16	DIODE UZ-9.1BSB-TP			Q562	8-729-422-73	TRANSISTOR	UN4212	
D531	8-719-200-82	DIODE 11ES2			Q571	8-729-422-57	TRANSISTOR	UN4111	
D532	8-719-200-82	DIODE 11ES2			Q572	8-729-900-80	TRANSISTOR	DTC114ES	
D533	8-719-200-82	DIODE 11ES2			Q591	8-729-119-76	TRANSISTOR	2SA1175-HFE	
D534	8-719-011-18	DIODE UZ-33BSC-TP			Q592	8-729-021-82	TRANSISTOR	2SD2396K	
D551	8-719-200-02	DIODE 10E2			Q601	8-729-900-80	TRANSISTOR	DTC114ES	
D552	8-719-200-02	DIODE 10E2			Q602	8-729-620-05	TRANSISTOR	2SC2603-EF	
D553	8-719-200-02	DIODE 10E2			Q871	8-729-422-57	TRANSISTOR	UN4111	
D554	8-719-200-02	DIODE 10E2			Q872	8-729-422-57	TRANSISTOR	UN4111	
D561	8-719-200-82	DIODE 11ES2			<b>&lt; RESISTOR &gt;</b>				
D562	8-719-987-63	DIODE 1N4148M			△R510	1-219-786-11	FUSIBLE	22	5% 1/4W F
D563	8-719-200-82	DIODE 11ES2			R511	1-249-413-11	CARBON	470	5% 1/4W
D571	8-719-987-63	DIODE 1N4148M			△R520	1-219-786-11	FUSIBLE	22	5% 1/4W F
D581	8-719-987-63	DIODE 1N4148M			R521	1-249-421-11	CARBON	2.2K	5% 1/4W
D582	8-719-987-63	DIODE 1N4148M			R522	1-249-417-11	CARBON	1K	5% 1/4W
D591	8-719-110-22	DIODE RD11ES-B2			△R530	1-219-153-11	FUSIBLE	10	5% 1/4W F
D601	8-719-987-63	DIODE 1N4148M			R531	1-260-095-11	CARBON	470	5% 1/2W
D602	8-719-987-63	DIODE 1N4148M			R562	1-249-421-11	CARBON	2.2K	5% 1/4W
D603	8-719-200-82	DIODE 11ES2			R563	1-249-409-11	CARBON	220	5% 1/4W
D604	8-719-200-82	DIODE 11ES2			R564	1-247-843-11	CARBON	3.3K	5% 1/4W
D605	8-719-987-63	DIODE 1N4148M			R571	1-249-437-11	CARBON	47K	5% 1/4W
D801	8-719-987-63	DIODE 1N4148M			R572	1-249-437-11	CARBON	47K	5% 1/4W
D802	8-719-987-63	DIODE 1N4148M			R573	1-249-437-11	CARBON	47K	5% 1/4W
D803	8-719-010-33	DIODE UZ-4.7BSB			R576	1-249-429-11	CARBON	10K	5% 1/4W
D881	8-719-987-63	DIODE 1N4148M			R581	1-249-425-11	CARBON	4.7K	5% 1/4W
D882	8-719-987-63	DIODE 1N4148M			R582	1-249-425-11	CARBON	4.7K	5% 1/4W
<b>&lt; FERRITE BEAD &gt;</b>									
FB802	1-412-473-21	INDUCTOR 0UH			△R590	1-217-640-11	FUSIBLE	3.3	5% 1/4W F
FB803	1-412-473-21	INDUCTOR 0UH			R591	1-249-425-11	CARBON	4.7K	5% 1/4W
FB805	1-412-473-21	INDUCTOR 0UH			R592	1-249-441-11	CARBON	100K	5% 1/4W
FB806	1-412-473-21	INDUCTOR 0UH			R593	1-249-421-11	CARBON	2.2K	5% 1/4W
<b>&lt; IC &gt;</b>									
IC510	8-759-604-32	IC M5F7810			R601	1-249-429-11	CARBON	10K	5% 1/4W
IC511	8-759-604-86	IC M5F7807L			R602	1-247-807-31	CARBON	100	5% 1/4W
IC560	8-759-450-47	IC BA05T			R603	1-249-429-11	CARBON	10K	5% 1/4W
IC570	8-759-426-96	IC LA5620			R604	1-247-807-31	CARBON	100	5% 1/4W
					R605	1-249-417-11	CARBON	1K	5% 1/4W
					R606	1-247-807-31	CARBON	100	5% 1/4W
					R607	1-247-807-31	CARBON	100	5% 1/4W
					R608	1-247-807-31	CARBON	100	5% 1/4W
					R609	1-247-807-31	CARBON	100	5% 1/4W

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

**MAIN**    **MD-LED**    **PANEL**

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>		<u>Remark</u>	<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>		<u>Remark</u>	
R610	1-247-807-31	CARBON	100	5%	1/4W	R871	1-249-421-11	CARBON	2.2K	5% 1/4W
R611	1-249-429-11	CARBON	10K	5%	1/4W	R872	1-249-441-11	CARBON	100K	5% 1/4W
R612	1-247-807-31	CARBON	100	5%	1/4W	R873	1-247-887-00	CARBON	220K	5% 1/4W
R613	1-247-807-31	CARBON	100	5%	1/4W	R874	1-249-421-11	CARBON	2.2K	5% 1/4W
R614	1-247-807-31	CARBON	100	5%	1/4W	R875	1-249-441-11	CARBON	100K	5% 1/4W
R615	1-249-425-11	CARBON	4.7K	5%	1/4W	R876	1-247-887-00	CARBON	220K	5% 1/4W
R616	1-247-843-11	CARBON	3.3K	5%	1/4W	R881	1-247-903-00	CARBON	1M	5% 1/4W
R617	1-249-413-11	CARBON	470	5%	1/4W					
R618	1-249-425-11	CARBON	4.7K	5%	1/4W					
R619	1-247-843-11	CARBON	3.3K	5%	1/4W					
R620	1-249-413-11	CARBON	470	5%	1/4W	X601	1-760-489-11	VIBRATOR, CERAMIC (5MHz)		
R621	1-247-843-11	CARBON	3.3K	5%	1/4W	X602	1-567-098-41	VIBRATOR, CRYSTAL (32kHz)		
R622	1-247-807-31	CARBON	100	5%	1/4W					
R623	1-247-807-31	CARBON	100	5%	1/4W					
R624	1-249-429-11	CARBON	10K	5%	1/4W	*	1-666-899-11	MD-LED BOARD		
									*****	
R625	1-249-429-11	CARBON	10K	5%	1/4W					
R626	1-247-807-31	CARBON	100	5%	1/4W					
R627	1-247-807-31	CARBON	100	5%	1/4W	X603	8-719-057-09	LED LNJ801LPDJA (MD INDICATOR)		
R628	1-249-429-11	CARBON	10K	5%	1/4W					
R629	1-249-429-11	CARBON	10K	5%	1/4W					
R630	1-249-429-11	CARBON	100	5%	1/4W	*	A-4403-402-A	PANEL BOARD, COMPLETE		
									*****	
R631	1-249-433-11	CARBON	22K	5%	1/4W					
R632	1-249-437-11	CARBON	47K	5%	1/4W	*	4-993-866-01	HOLDER (FL)		
R633	1-249-437-11	CARBON	47K	5%	1/4W					
R634	1-249-429-11	CARBON	10K	5%	1/4W					
R635	1-247-807-31	CARBON	100	5%	1/4W					
R636	1-247-807-31	CARBON	100	5%	1/4W	C901	1-162-306-11	CERAMIC	0.01uF	20% 16V
R637	1-247-807-31	CARBON	100	5%	1/4W	C902	1-162-306-11	CERAMIC	0.01uF	20% 16V
R638	1-247-807-31	CARBON	100	5%	1/4W	C903	1-126-160-11	ELECT	1uF	20% 50V
R639	1-247-807-31	CARBON	100	5%	1/4W	C923	1-164-159-11	CERAMIC	0.1uF	50V
R640	1-247-807-31	CARBON	100	5%	1/4W	C935	1-124-261-00	ELECT	10uF	20% 50V
R641	1-247-807-31	CARBON	100	5%	1/4W	C936	1-124-234-00	ELECT	22uF	20% 16V
R642	1-247-807-31	CARBON	100	5%	1/4W	C937	1-164-159-11	CERAMIC	0.1uF	50V
R643	1-247-807-31	CARBON	100	5%	1/4W	C940	1-162-282-31	CERAMIC	100PF	10% 50V
R644	1-247-807-31	CARBON	100	5%	1/4W	C946	1-164-159-11	CERAMIC	0.1uF	50V
R645	1-249-425-11	CARBON	4.7K	5%	1/4W	C948	1-162-286-31	CERAMIC	220PF	10% 50V
R646	1-247-843-11	CARBON	3.3K	5%	1/4W	C949	1-162-286-31	CERAMIC	220PF	10% 50V
R647	1-249-429-11	CARBON	10K	5%	1/4W	C950	1-162-286-31	CERAMIC	220PF	10% 50V
R648	1-249-413-11	CARBON	470	5%	1/4W	C951	1-162-286-31	CERAMIC	220PF	10% 50V
R649	1-247-891-00	CARBON	330K	5%	1/4W	C952	1-162-286-31	CERAMIC	220PF	10% 50V
R650	1-249-417-11	CARBON	1K	5%	1/4W	C953	1-162-286-31	CERAMIC	220PF	10% 50V
R651	1-249-417-11	CARBON	1K	5%	1/4W	C954	1-162-286-31	CERAMIC	220PF	10% 50V
R652	1-249-417-11	CARBON	1K	5%	1/4W	C955	1-162-286-31	CERAMIC	220PF	10% 50V
R653	1-249-417-11	CARBON	1K	5%	1/4W	C956	1-162-286-31	CERAMIC	220PF	10% 50V
R654	1-249-417-11	CARBON	1K	5%	1/4W	C957	1-162-286-31	CERAMIC	220PF	10% 50V
R655	1-249-417-11	CARBON	1K	5%	1/4W	C958	1-162-286-31	CERAMIC	220PF	10% 50V
R656	1-249-417-11	CARBON	1K	5%	1/4W	C959	1-162-286-31	CERAMIC	220PF	10% 50V
R801	1-249-417-11	CARBON	1K	5%	1/4W	C960	1-162-286-31	CERAMIC	220PF	10% 50V
R807	1-247-807-31	CARBON	100	5%	1/4W	C961	1-162-286-31	CERAMIC	220PF	10% 50V
R821	1-249-441-11	CARBON	100K	5%	1/4W	C962	1-162-286-31	CERAMIC	220PF	10% 50V
R822	1-249-417-11	CARBON	1K	5%	1/4W	C964	1-126-160-11	ELECT	1uF	20% 50V
R825	1-249-429-11	CARBON	10K	5%	1/4W	C965	1-124-589-11	ELECT	47uF	20% 16V
R826	1-249-429-11	CARBON	10K	5%	1/4W	C966	1-162-294-31	CERAMIC	0.001uF	10% 50V
R831	1-249-441-11	CARBON	100K	5%	1/4W	C1401	1-162-294-31	CERAMIC	0.001uF	10% 50V
R832	1-249-417-11	CARBON	1K	5%	1/4W	C1402	1-162-294-31	CERAMIC	0.001uF	10% 50V
R851	1-249-421-11	CARBON	2.2K	5%	1/4W	C1404	1-164-159-11	CERAMIC	0.1uF	50V
R852	1-249-431-11	CARBON	15K	5%	1/4W					
R861	1-249-421-11	CARBON	2.2K	5%	1/4W					
R862	1-249-431-11	CARBON	15K	5%	1/4W	*	CN901	1-568-865-11	SOCKET, CONNECTOR 23P	

## PANEL

## POWER AMP

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>	<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>				
<b>&lt; DIODE &gt;</b>											
D901	8-719-010-43	DIODE UZ-5.6BSC		R928	1-249-411-11	CARBON	330 5% 1/4W				
D902	8-719-058-03	LED SEL5423E-TP15 (► (MD))		R929	1-249-437-11	CARBON	47K 5% 1/4W				
D903	8-719-057-97	LED SEL5923A-TP15 (II (MD))		R930	1-249-411-11	CARBON	330 5% 1/4W				
D904	8-719-057-09	LED LNJ801LPDJA (●)		R931	1-249-437-11	CARBON	47K 5% 1/4W11				
D906	8-719-058-03	LED SEL5423E-TP15 (► (CD))		R932	1-249-407-11	CARBON	150 5% 1/4W				
D907	8-719-057-97	LED SEL5923A-TP15 (II (CD))		R933	1-249-407-11	CARBON	150 5% 1/4W				
D908	8-719-057-09	LED LNJ801LPDJA (CD INDICATOR)		R934	1-249-437-11	CARBON	47K 5% 1/4W				
<b>&lt; FLUORESCENT INDICATOR TUBE &gt;</b>											
FL901	1-517-687-11	INDICATOR TUBE, FLUORESCENT		R935	1-249-437-11	CARBON	47K 5% 1/4W				
<b>&lt; IC &gt;</b>											
IC901	8-759-297-23	IC M66004M8FP		R936	1-249-409-11	CARBON	220 5% 1/4W				
IC902	8-759-459-83	IC NJL55H400		R937	1-249-393-11	CARBON	10 5% 1/4W				
<b>&lt; JACK &gt;</b>											
J1400	1-764-106-21	JACK (PHONES)		R938	1-249-393-11	CARBON	10 5% 1/4W				
<b>&lt; TRANSISTOR &gt;</b>											
Q901	8-729-620-05	TRANSISTOR 2SC2603-EF		R939	1-249-413-11	CARBON	470 5% 1/4W				
Q902	8-729-620-05	TRANSISTOR 2SC2603-EF		R940	1-249-415-11	CARBON	680 5% 1/4W				
Q904	8-729-422-57	TRANSISTOR UN4111		R941	1-249-417-11	CARBON	1K 5% 1/4W				
Q905	8-729-422-57	TRANSISTOR UN4111		R942	1-249-419-11	CARBON	1.5K 5% 1/4W				
Q906	8-729-422-57	TRANSISTOR UN4111		R943	1-249-421-11	CARBON	2.2K 5% 1/4W				
Q907	8-729-422-57	TRANSISTOR UN4111		R944	1-249-425-11	CARBON	4.7K 5% 1/4W				
Q908	8-729-422-57	TRANSISTOR UN4111		R945	1-249-430-11	CARBON	12K 5% 1/4W				
Q909	8-729-422-57	TRANSISTOR UN4111		<b>&lt; SWITCH &gt;</b>							
Q910	8-729-422-57	TRANSISTOR UN4111		S901	1-467-869-11	ENCODER, ROTARY (VOLUME)					
<b>&lt; RESISTOR &gt;</b>				S902	1-554-303-21	SWITCH, TACTILE (POWER)					
R901	1-249-441-11	CARBON 100K 5% 1/4W		S903	1-554-303-21	SWITCH, TACTILE (CD ■)					
R902	1-249-441-11	CARBON 100K 5% 1/4W		S904	1-554-303-21	SWITCH, TACTILE (CD ►■)					
R903	1-249-417-11	CARBON 1K 5% 1/4W		S905	1-554-303-21	SWITCH, TACTILE (△ (CD))					
R904	1-249-417-11	CARBON 1K 5% 1/4W		S906	1-554-303-21	SWITCH, TACTILE (MD ■)					
R907	1-249-441-11	CARBON 100K 5% 1/4W		S907	1-554-303-21	SWITCH, TACTILE (MD ►■)					
R908	1-249-435-11	CARBON 33K 5% 1/4W		S908	1-554-303-21	SWITCH, TACTILE (△ (MD))					
R909	1-249-417-11	CARBON 1K 5% 1/4W		S909	1-554-303-21	SWITCH, TACTILE (FUNCTION)					
R910	1-249-417-11	CARBON 1K 5% 1/4W		S910	1-554-303-21	SWITCH, TACTILE (MD/CD ►►►I, TUNER +)					
R911	1-249-417-11	CARBON 1K 5% 1/4W		S911	1-554-303-21	SWITCH, TACTILE (TUNER/BAND)					
R912	1-249-417-11	CARBON 1K 5% 1/4W		S912	1-554-303-21	SWITCH, TACTILE (MD/CD I◄◄◄I, TUNER -)					
R913	1-249-421-11	CARBON 2.2K 5% 1/4W		S913	1-554-303-21	SWITCH, TACTILE (● REC)					
R914	1-247-807-31	CARBON 100 5% 1/4W		S914	1-554-303-21	SWITCH, TACTILE (CD-MD SYNC)					
R915	1-249-409-11	CARBON 220 5% 1/4W		S915	1-554-303-21	SWITCH, TACTILE (REPEAT, STEREO/MONO)					
R916	1-247-807-31	CARBON 100 5% 1/4W		S916	1-554-303-21	SWITCH, TACTILE (PLAY MODE, TUNING MODE)					
R917	1-247-807-31	CARBON 100 5% 1/4W		*****							
R918	1-249-409-11	CARBON 220 5% 1/4W		* A-4403-410-A POWER AMP BOARD, COMPLETE (AEP, UK, G, AED)							
R919	1-247-807-31	CARBON 100 5% 1/4W		* A-4403-417-A POWER AMP BOARD, COMPLETE (MY, SP, HK)							
R920	1-247-807-31	CARBON 100 5% 1/4W		*****							
R921	1-247-807-31	CARBON 100 5% 1/4W		< CAPACITOR >							
R922	1-247-807-31	CARBON 100 5% 1/4W		C1201	1-126-963-11	ELECT	4.7uF 20% 50V				
R923	1-249-437-11	CARBON 47K 5% 1/4W		C1202	1-162-288-31	CERAMIC	330PF 10% 50V				
R924	1-249-407-11	CARBON 150 5% 1/4W		C1203	1-162-286-31	CERAMIC	220PF 10% 50V				
R925	1-249-407-11	CARBON 150 5% 1/4W		C1204	1-126-967-11	ELECT	47uF 20% 50V				
R926	1-249-437-11	CARBON 47K 5% 1/4W		C1205	1-126-967-11	ELECT	47uF 20% 50V				
R927	1-249-437-11	CARBON 47K 5% 1/4W		C1206	1-126-948-11	ELECT	100uF 20% 35V				
				C1207	1-136-165-00	FILM	0.1uF 5% 50V				

<b>POWER AMP</b>	<b>ST TRANSLATION</b>	<b>SW</b>	<b>TRANSFORMER</b>
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Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark				
C1208	1-126-965-11	ELECT	22uF 20% 50V	R1229	1-249-429-11	CARBON	10K 5% 1/4W				
C1210	1-136-163-00	FILM	0.068uF 5% 50V	R1231	1-247-807-31	CARBON	100 5% 1/4W				
C1211	1-136-163-00	FILM	0.068uF 5% 50V	R1232	1-249-429-11	CARBON	10K 5% 1/4W				
C1220	1-126-924-11	ELECT	330uF 20% 10V	R1233	1-249-429-11	CARBON	10K 5% 1/4W				
C1251	1-126-963-11	ELECT	4.7uF 20% 50V	△R1243	1-217-637-00	FUSIBLE	1 5% 1/4W F				
C1252	1-162-288-31	CERAMIC	330PF 10% 50V	R1251	1-249-417-11	CARBON	1K 5% 1/4W				
C1253	1-162-286-31	CERAMIC	220PF 10% 50V	R1252	1-249-437-11	CARBON	47K 5% 1/4W				
C1254	1-126-967-11	ELECT	47uF 20% 50V	R1253	1-249-417-11	CARBON	1K 5% 1/4W				
C1255	1-126-967-11	ELECT	47uF 20% 50V	R1254	1-249-437-11	CARBON	47K 5% 1/4W				
C1256	1-126-948-11	ELECT	100uF 20% 35V	R1255	1-260-103-11	CARBON	2.2K 5% 1/2W				
C1257	1-136-165-00	FILM	0.1uF 5% 50V	R1257	1-260-103-11	CARBON	2.2K 5% 1/2W				
C1260	1-136-163-00	FILM	0.068uF 5% 50V	△R1259	1-212-881-11	FUSIBLE	100 5% 1/4W F				
C1261	1-136-163-00	FILM	0.068uF 5% 50V	△R1260	1-217-151-00	RES, METAL PLATE	0.22 2W F				
C1301	1-128-549-11	ELECT	3300uF 20% 35V	R1261	1-249-417-11	CARBON	1K 5% 1/4W				
C1302	1-128-549-11	ELECT	3300uF 20% 35V	R1262	1-249-431-11	CARBON	15K 5% 1/4W				
C1303	1-136-165-00	FILM	0.1uF 5% 50V	R1263	1-249-441-11	CARBON	100K 5% 1/4W				
C1304	1-136-165-00	FILM	0.1uF 5% 50V	R1268	1-249-397-11	CARBON	22 5% 1/4W				
< CONNECTOR >											
* CN1202	1-565-485-11	CONNECTOR, BOARD TO BOARD 9P		R1269	1-249-397-11	CARBON	22 5% 1/4W				
< DIODE >											
D1201	8-719-987-63	DIODE	1N4148M	R1271	1-249-431-11	CARBON	15K 5% 1/4W				
D1202	8-719-987-63	DIODE	1N4148M	R1272	1-249-431-11	CARBON	15K 5% 1/4W				
D1203	8-719-987-63	DIODE	1N4148M	R1273	1-249-413-11	CARBON	470 5% 1/4W				
D1251	8-719-987-63	DIODE	1N4148M	< THERMISTOR (POSITIVE) >							
D1300	8-719-025-03	DIODE	RBA-402-SL	*****							
< IC >											
IC1201	8-749-920-13	IC	STK-4132MK2	*							
< TRANSISTOR >											
Q1201	8-729-620-05	TRANSISTOR	2SC2603-EF	CN744	1-568-834-11	SOCKET, CONNECTOR 15P					
Q1202	8-729-900-80	TRANSISTOR	DTC114ES	CN745	1-774-289-11	PIN, CONNECTOR (PC BOARD) 15P					
Q1231	8-729-422-73	TRANSISTOR	UN4212	*****							
Q1232	8-729-620-05	TRANSISTOR	2SC2603-EF	*							
Q1251	8-729-620-05	TRANSISTOR	2SC2603-EF	1-667-719-11 SW BOARD							
< RESISTOR >											
R1201	1-249-417-11	CARBON	1K 5% 1/4W	CN601	1-770-697-11	CONNECTOR, FFC/FPC 14P					
R1202	1-249-437-11	CARBON	47K 5% 1/4W	CN602	1-778-638-21	PIN, CONNECTOR (PC BOARD) 2P					
R1203	1-249-417-11	CARBON	1K 5% 1/4W	CN603	1-778-638-21	PIN, CONNECTOR (PC BOARD) 2P					
R1204	1-249-437-11	CARBON	47K 5% 1/4W	< SWITCH >							
R1205	1-260-103-11	CARBON	2.2K 5% 1/2W	S681	1-572-467-61	SWITCH, PUSH (1 KEY) (LIMIT IN)					
R1207	1-260-103-11	CARBON	2.2K 5% 1/2W	S682	1-692-377-31	SWITCH, PUSH (1 KEY) (REFLECT)					
△R1209	1-212-881-11	FUSIBLE	100 5% 1/4W F	S683	1-692-847-21	SWITCH, PUSH (1 KEY) (PROTECT)					
△R1210	1-217-151-00	RES, METAL PLATE	0.22 2W F	S685	1-572-467-61	SWITCH, PUSH (1 KEY) (CHUCKING IN)					
R1211	1-249-417-11	CARBON	1K 5% 1/4W	S686	1-762-621-21	SWITCH, PUSH (1 KEY) (PACK OUT)					
R1212	1-249-431-11	CARBON	15K 5% 1/4W	S687	1-572-688-11	SWITCH, PUSH (1 KEY) (PB POSITION)					
R1213	1-249-441-11	CARBON	100K 5% 1/4W	S688	1-762-621-21	SWITCH, PUSH (1 KEY) (REC POSITION)					
R1214	1-260-099-11	CARBON	1K 5% 1/2W	*****							
R1217	1-260-099-11	CARBON	1K 5% 1/2W	*							
R1218	1-249-397-11	CARBON	22 5% 1/4W	1-666-904-11 TRANSFORMER BOARD							
R1219	1-249-397-11	CARBON	22 5% 1/4W	*****							
R1225	1-249-397-11	CARBON	22 5% 1/4W	1-533-293-11 FUSE HOLDER							
R1226	1-249-429-11	CARBON	10K 5% 1/4W	< CONNECTOR >							
R1227	1-249-429-11	CARBON	10K 5% 1/4W	CN1600 1-564-321-00 PIN, CONNECTOR 2P							
R1228	1-249-441-11	CARBON	100K 5% 1/4W	*****							

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

# TRANSFORMER

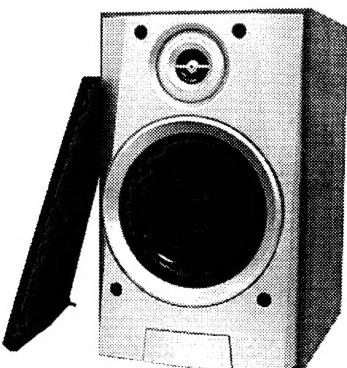
<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>	<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>
* CN1601	1-564-518-11	PLUG, CONNECTOR 3P				*****	
CN1602	1-564-523-11	PLUG, CONNECTOR 8P				HARDWARE LIST	
						*****	
		< FUSE >		#1	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
△F1601	1-532-464-31	FUSE (T2.5AL/250V) (MY, SP, HK)		#2	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S	
△F1603	1-532-504-31	FUSE (T4AL/250V)		#3	7-685-650-79	SCREW +BVTP 3X16 TYPE2 IT-3	
△F1605	1-532-504-31	FUSE (T4AL/250V)		#4	7-685-871-01	SCREW +BVTT 3X6	
				#5	7-685-850-04	SCREW +BVTT 2X3 (S)	
		< SWITCH >		#6	7-685-851-04	SCREW +BVTT 2X4 (S)	
△S1600	1-762-753-11	SWITCH, VOLTAGE SELECTION (VOLTAGE SELECTOR) (MY, SP, HK)		#7	7-627-553-17	PRECISION SCREW +P 2X2 TYPE 3	
		< THERMISTOR (POSITIVE) >		#8	7-627-552-27	SCREW, PRECISION +P 1.7X2	
THP16001-801-696-11		THERMISTOR		#9	7-624-105-04	STOP RING 2.3, TYPE-E	
THP16011-801-696-11		THERMISTOR		#10	7-685-234-19	SCREW +KTP 2.6X8 TYPE2 NON-SLIT	
THP16021-801-671-11		THERMISTOR					
THP16031-801-671-11		THERMISTOR		#11	7-621-775-10	SCREW +B 2.6X4	
				#12	7-621-255-15	SCREW +P 2X3	
				#13	7-627-852-28	+P 1.7X3	
			*****				
		MISCELLANEOUS					
		*****					
10	1-782-793-11	WIRE (FLAT TYPE) (23 CORE)					
52	1-776-241-11	WIRE (FLAT TYPE) (19 CORE)					
56	1-777-353-11	WIRE (FLAT TYPE) (15 CORE) (10 cm)					
62	1-233-546-21	ENCAPSULATED COMPONENT (MY, SP, HK)					
62	1-693-387-21	TUNER (FM/MW/LW) (AEP, UK, G, AED)					
64	1-773-004-11	WIRE (FLAT TYPE) (15 CORE): BEND (10 cm)					
△68	1-569-008-11	ADAPTOR, CONVERSION 2P (MY, SP)					
△69	1-770-019-11	ADAPTOR, CONVERSION PLUG 3P (HK)					
103	1-782-683-11	WIRE (FLAT TYPE) (14 CORE)					
110	1-782-792-11	WIRE (FLAT TYPE) (25 CORE)					
△167	8-583-028-02	OPTICAL PICK-UP KMS-260A/J1N					
△255	8-848-367-11	OPTICAL PICK-UP KSS-213B/K-N					
256	1-769-069-11	WIRE (FLAT TYPE) (16 CORE)					
△CNP16011-751-520-11		CORD, POWER (UK)					
△CNP16011-769-744-11		CORD, POWER (EXCEPT UK)					
			*****				
FAN901	1-698-997-11	FAN, DC					
HR901	1-500-396-11	HEAD, OVER LIGHT (RF325-74A)					
M101	X-4917-523-4	BASE (OUTSART) ASSY (SPINDLE)					
M102	X-4917-504-1	MOTOR ASSY (SLED)					
M901	A-4672-135-A	MOTOR ASSY, SPINDLE					
M902	A-4672-133-A	MOTOR ASSY, SLED					
M903	A-4608-362-A	MOTOR (L) ASSY (LOADING) (CD)					
M903	A-4672-134-A	MOTOR ASSY, LOADING (MD)					
△T1600	1-431-497-11	TRANSFORMER, POWER (AEP, UK, G, AED)					
△T1600	1-431-498-11	TRANSFORMER, POWER (MY, SP, HK)					
			*****				

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

# SS-MD313

## SERVICE MANUAL

*Canadian Model  
AEP Model  
UK Model  
E Model*



- SS-MD313 is the speaker system in DHC-MD313.

### SPECIFICATIONS

Speaker system	2-way, bass-reflex type
Speaker units	
Woofers:	13 cm, cone type
Tweeter:	2.5 cm, balance drive type
Mass	Approx. 2.8 kg net per speaker
Rated impedance	6 ohms
Dimensions (w/h/d)	170 × 275 × 240 mm

Design and specifications are subject to change without notice.

## SPEAKER SYSTEM

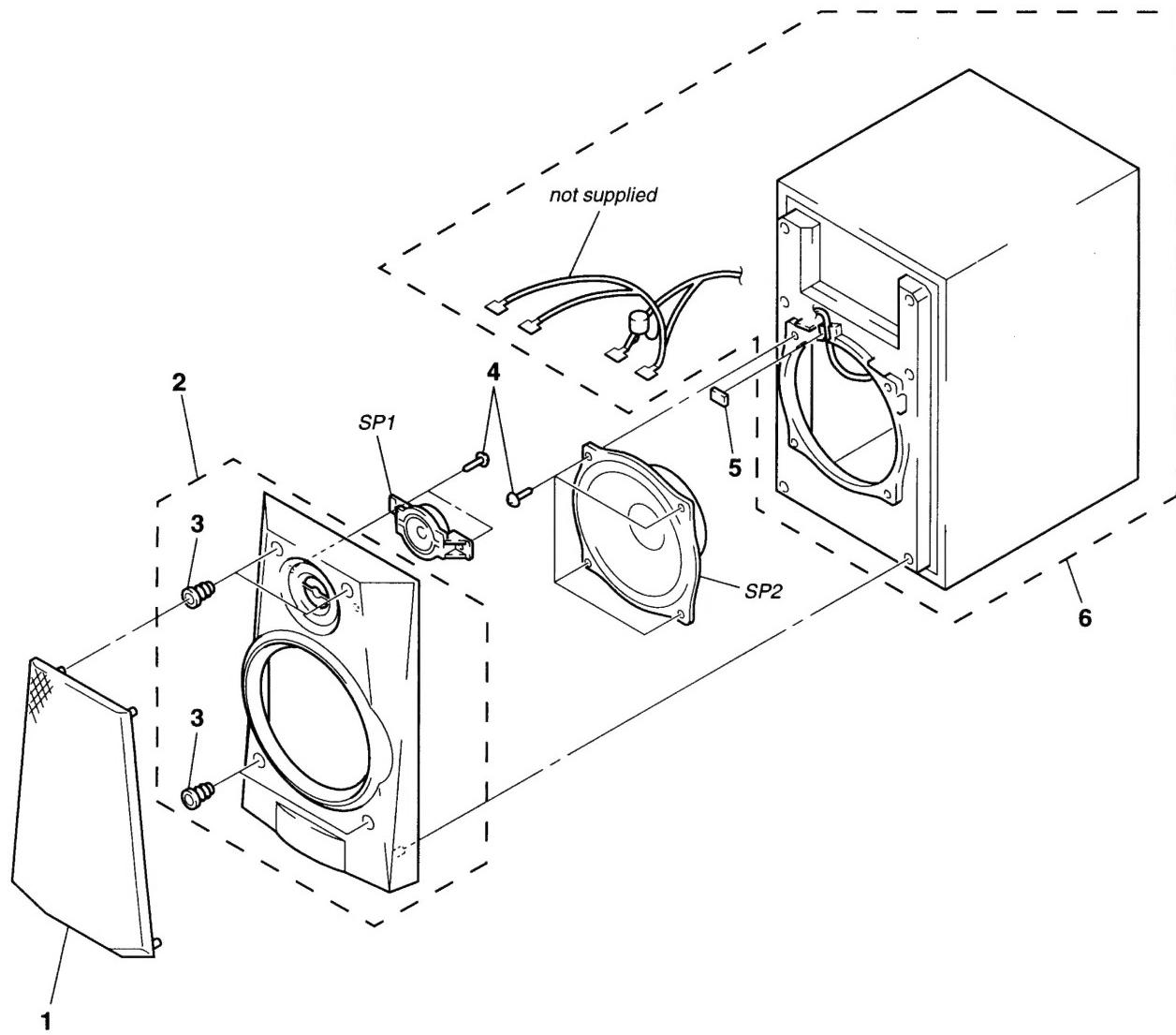


# SONY®

## EXPLODED VIEW AND PARTS LIST

### NOTE:

- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Abbreviation  
AED: North European



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
1	X-4948-899-1	FRAME ASSY, GRILLE		* 6	A-4384-826-A	CABINET ASSY, SPEAKER	
2	X-4948-898-1	PANEL ASSY, FRONT				(EXCEPT German, AED)	
* 3	4-963-075-01	CATCHER		* 6	A-4384-827-A	CABINET ASSY, SPEAKER (German, AED)	
4	4-874-614-21	SCREW (6) (3.5X14), TAPPING		SP1	1-505-727-21	SPEAKER (2.5cm)	
5	9-911-840-XX	PACKING		SP2	1-505-773-11	SPEAKER (12cm)	